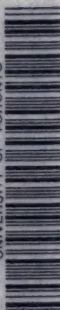


UNIVERSITY OF TORONTO



3 1761 01078271 2

QB  
311  
U473  
1913  
C.1  
PASC







ov. Doc  
U.S.  
e.s.

3

(DEPARTMENT OF COMMERCE)

U. S. COAST AND GEODETIC SURVEY

///

O. H. TITTMANN

SUPERINTENDENT

GEODESY

# TRIANGULATION ALONG THE WEST COAST OF FLORIDA

BY

CLARENCE H. SWICK

Computer, U. S. Coast and Geodetic Survey

SPECIAL PUBLICATION No. 16







Digitized by the Internet Archive  
in 2007 with funding from  
Microsoft Corporation



DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

O. H. TITTMANN

SUPERINTENDENT

---

GEODESY

---

TRIANGULATION ALONG THE WEST COAST  
OF FLORIDA

BY

CLARENCE H. SWICK

Computer, U. S. Coast and Geodetic Survey

---

SPECIAL PUBLICATION No. 16



WASHINGTON  
GOVERNMENT PRINTING OFFICE

1913





QB

311

U473

1913

c.1

PASC.



# CONTENTS.

---

General statement.....	Page. 5
The triangulation.....	5
Adjustment of the triangulation.....	6
The United States Standard Datum.....	7
Table of positions:	
Cape Sable to San Carlos Bay.....	11
Caloosahatchee River to Charlotte Harbor.....	12
Gasparilla Sound to Sarasota Bay.....	18
Tampa Bay.....	21
Boca Ceiga Bay to Clearwater Harbor.....	27
Gainesville to Clearwater Harbor.....	30
Cedar Keys to St. Marks River.....	35
St. Marks River to St. Andrews Sound.....	38
St. Andrews Bay.....	45
Choctawhatchee Bay to St. Andrews Bay.....	47
Santa Rosa Sound.....	49
Pensacola Bay.....	52
Perdido Bay.....	57
Descriptions of stations:	
Cape Sable to San Carlos Bay.....	62
Caloosahatchee River to Charlotte Harbor.....	65
Gasparilla Sound to Sarasota Bay.....	74
Tampa Bay.....	78
Boca Ceiga Bay to Clearwater Harbor.....	81
Gainesville to Clearwater Harbor.....	86
Cedar Keys to St. Marks River.....	94
St. Marks River to St. Andrews Sound.....	99
St. Andrews Bay.....	108
Choctawhatchee Bay to St. Andrews Bay.....	114
Santa Rosa Sound.....	117
Pensacola Bay.....	123
Perdido Bay.....	130
Sketches.....	facing 136
Index.....	137



## ILLUSTRATIONS.

	Facing page.
1. Standard triangulation station marks.....	61
2. Index map showing general location of the triangulation.....	136
3. Index map showing the limits of each of the following sketches.....	136
4. Triangulation, Cape Sable to Mikado-Seminole.....	136
5. Triangulation, Mikado-Seminole to Big Marco River.....	136
6. Triangulation, Big Marco River to San Carlos Bay.....	136
7. Triangulation, Caloosahatchee River to Charlotte Harbor.....	136
8. Triangulation, Charlotte Harbor.....	136
9. Triangulation, Lemon Bay to Sarasota Bay.....	136
10. Triangulation, Tampa Bay.....	136
11. Triangulation, Boca Ceiga Bay.....	136
12. Triangulation, Clearwater Harbor to Coral Rock-Southeast Point.....	136
13. Triangulation, Coral Rock-Southeast Point to Withlacoochee River.....	136
14. Triangulation, Withlacoochee River to Cedar Keys.....	136
15. Triangulation, Gainesville to Cedar Keys.....	136
16. Triangulation, Cedar Keys to Number 2-Scaffold.....	136
17. Triangulation, Number 2-Scaffold to Triton-Clearwater Creek.....	136
18. Triangulation, Triton-Clearwater Creek to St. Marks River.....	136
19. Triangulation, St. Marks River to St. George Sound.....	136
20. Triangulation, St. George Sound.....	136
21. Triangulation, Apalachicola Bay to St. Josephs Bay.....	136
22. Triangulation, St. Josephs Bay to St. Andrews Sound.....	136
23. Triangulation, St. Andrews Bay.....	136
24. Triangulation, St. Andrews base to Blue Mountain.....	136
25. Triangulation, Choctawhatchee Bay.....	136
26. Triangulation, eastern end of Santa Rosa Sound.....	136
27. Triangulation, western end of Santa Rosa Sound and southern part of Pensacola Bay.....	136
28. Triangulation, Escambia Bay and East Bay.....	136
29. Triangulation, Perdido Bay.....	136



# TRIANGULATION ALONG THE WEST COAST OF FLORIDA.

---

By CLARENCE H. SWICK,

*Computer, U. S. Coast and Geodetic Survey.*

---

## GENERAL STATEMENT.

The main purpose of this publication is to give to the engineering public as complete a list as possible of the results of triangulation along the west coast of Florida from Cape Sable to Alabama and from the inland town of Gainesville to the coast at Cedar Keys, in all more than 1150 triangulation stations. This, together with Appendix 6, United States Coast and Geodetic Survey Report for 1911,<sup>1</sup> gives all the available triangulation data for the State of Florida.

This triangulation presents no unusual geodetic features, is not of primary degree of accuracy, was done under methods now largely superseded (except that which was done since 1900), and consequently offers little or no material for discussion. If its scientific value be small, on the other hand its practical value is large, for it offers to the engineer and to the geographer the positions of a large number of points determined trigonometrically and all correlated on one geodetic datum, known as the United States Standard Datum. (See p. 7.)

The accuracy of this triangulation is comparable with that of other coast triangulation in the United States; that is, it is about the same as the accuracy of triangulation usually classed as tertiary. The probable error of a length is less than 1 part in 5000 except between side points or between intersection points near together determined from distant stations, where the error is likely to exceed this amount.

## THE TRIANGULATION.

This publication is mainly taken up with the results of the triangulation, namely, the list of geographic positions, the descriptions of the stations, and the sketches. The details of the field and office work which are always included in United States Coast Survey publications of primary triangulation are not of sufficient importance in work of this character to warrant publication. The index at the end of the book used in connection with the sketches makes it possible to obtain easily and quickly the data for any station or group of stations. As complete descriptions as are available are given for the principal points and for part of the supplementary points. Nearly all of the remaining stations are sufficiently described by their names, as, for example, "Tampa Bay Hotel, north tower."

The observations involved in this triangulation extend over a period of more than 60 years. Ordinarily, triangulation which has been done many years prior to the date of the publication of its results is largely reduced in value to the engineer by the loss of stations, either through the destroying agencies of time or the building agencies of man. In many cases, due to changes in the surrounding topography or to the destruction of the surface and reference marks, the engineer might fail to recover a station which still exists. If he dug at the proper place he would discover the mark and recover the station, but without the guidance of the reference marks or of the local topography he can recover it only by locating a point in the vicinity by means of

---

<sup>1</sup> Triangulation along the East Coast of Florida and on the Florida Keys, by Hugh C. Mitchell.



triangulation carried from the nearest available triangulation stations. After determining the geographic position of the new point a distance and direction can be computed to the position of the old station and measurements made to the spot indicated by the computations as its probable location.

A considerable portion of the triangulation along the west coast of Florida has been revised in recent years. Many of the old stations, the localities of which were visited, were not recovered. Some of them, it was determined, have been lost or destroyed. Others, it seemed probable, still existed, but the expense of a complete search was too great and the chances of recovery too small to warrant the search. Many stations, however, were recovered, and they were usually re-marked in a more permanent manner. Their descriptions were revised and additions made to them where necessary.

At several places along the coast, principally in the bays and harbors, new triangulation has been executed over the areas covered by the old triangulation. The reason for this apparent duplication is that not enough of the old stations could be recovered in those particular regions to control the hydrography or the topography. In every case the new work starts from two or more of the old stations which were recovered and is tied to as many more of the old stations as it was possible to locate. In St. Andrews Bay and the upper part of Tampa Bay, where nearly all of the old stations have been lost, only those recovered and the new stations have been included in this publication. At other places along the coast, as, for example, in Boca Ceiga Bay, practically all of the old stations have been lost and new triangulation has been executed over the same areas, but it has been necessary to use the old work in carrying forward the United States Standard Datum, and so the results have been included in this book.

It will be seen from the sketches at the end of this publication that the triangulation consists to a large extent of a chain of quadrilaterals with all angles observed. Along two different sections of the coast, from Cape Romano to San Carlos Bay and from St. Andrews Bay to a point opposite the eastern end of Choctawhatchee Bay, beach measures made with long wires were substituted for the triangulation. The horizontal angles were measured and the positions were carried ahead by means of these angles and the measured lengths of the traverse. Between Gainesville and the coast at Cedar Keys a traverse of a high degree of accuracy was measured along the railroad. This section of traverse, together with the section from Gainesville to Baldwin, published in Appendix 6, United States Coast and Geodetic Survey Report for 1911, serves to connect the northern end of the triangulation on the east coast of Florida with the west coast triangulation, and completes the loop around the southern and eastern part of the State.

#### ADJUSTMENT OF THE TRIANGULATION.

As stated in Appendix 6, Report for 1911, the positions of certain points in Fernandina were held fixed from an adjustment extending from the Eastern Oblique Arc near Atlanta, Ga. The triangulation from Fernandina to Baldwin, part way across the Florida peninsula, and the traverse from Baldwin to the west coast at Cedar Keys, were held fixed after having been adjusted for discrepancies of triangle closures, ratios of sides, and lengths, and having been made to conform to observed azimuths. No discrepancies developed in closing a loop were distributed in this part of the triangulation as it was considered to be of a much higher degree of accuracy than other parts of the loop.

The chain of triangulation (including a small section of measured traverse) along the Gulf coast between Cedar Keys and the Eastern Oblique Arc at Mobile Bay, was then adjusted, holding fixed the triangulation at Mobile Bay, and at Cedar Keys, and all observed azimuths and measured lengths along the coast.

In a similar manner the chain of triangulation, and sections of measured traverse extending down the east coast of Florida, around Cape Sable, and up the west coast to Cedar Keys was adjusted, holding fixed the triangulation at Fernandina, and at Cedar Keys, and all observed azimuths, and measured lengths.



In each of these two pieces of triangulation all observed azimuths were held fixed and the triangulation adjusted to them, it being reasonably certain that the observed azimuths were superior to any that might be computed through the triangulation. All measured lengths were also held. The discrepancies remaining in the triangulation after all conditions noted above had been satisfied were distributed along the weaker sections of the triangulation by means of latitude and longitude equations, it being believed that the character of the triangulation warranted this, and that the corrections fell close to where they belonged. This also made considerable saving in the computation.

#### THE UNITED STATES STANDARD DATUM.<sup>1</sup>

All of the positions and azimuths have been computed upon the Clarke spheroid of 1866, as expressed in meters, which has been in use in the Coast and Geodetic Survey for many years.

After a spheroid has been adopted and all the angles and lengths in a triangulation have been fully fixed, it is still necessary, before the computation of latitudes, longitudes, and azimuths can be made, to adopt a standard latitude and longitude for a specified station and a standard azimuth of a line from that station. For convenience, the adopted standard position (latitude and longitude) of a given station, together with the adopted standard azimuth of a line from that station, is called the geodetic datum.

The primary triangulation in the United States was commenced at various points, and existed at first as a number of detached portions in each of which the geodetic datum was necessarily dependent only upon the astronomic stations connected with that particular portion. As examples of such detached portions of triangulation there may be mentioned the early triangulation in New England and along the Atlantic coast, a detached portion of the transcontinental triangulation centering on St. Louis and another portion of the same triangulation in the Rocky Mountain region, and three separate portions of triangulation in California, in the latitude of San Francisco, in the vicinity of Santa Barbara Channel, and in the vicinity of San Diego. With the lapse of time these separate pieces have expanded until they have touched or overlapped.

The transcontinental triangulation, of which the office computation was completed in 1899, joins all of the detached portions mentioned and makes them one continuous triangulation. As soon as this took place the logical necessity existed of discarding the old geodetic data used in these various pieces and substituting one datum for the whole country, or at least for as much of the country as is covered by continuous triangulation. To do this is a very heavy piece of work, and involved much preliminary study to determine the best datum to be adopted. On March 13, 1901, the Superintendent adopted what is now known as the United States Standard Datum, and it was decided to reduce the positions to that datum as rapidly as possible. The datum adopted was that formerly in use in New England, and therefore its adoption did not affect the positions which had been used for geographic purposes in New England and along the Atlantic coast to North Carolina, nor those in the States of New York, Pennsylvania, New Jersey, and Delaware. The adopted datum does not agree, however, with that used in The Transcontinental Triangulation and in The Eastern Oblique Arc of the United States, publications which deal primarily with the purely scientific problem of the determination of the figure of the earth, and which were prepared for publication before the adoption of the new datum.

As the adoption of such a standard datum is a matter of considerable importance, it is in order here to explain the desirability of this step more fully.

The main objects to be attained by the geodetic operations of the Coast and Geodetic Survey are, first, the control of the charts published by the Survey; second, the furnishing of geographic positions (latitudes and longitudes), of accurately determined elevations, and of distances and azimuths, to officers connected with the Coast and Geodetic Survey and to other organizations; third, the determination of the figure of the earth. The first two of these objects are purely practical; the third is purely scientific. For the first and second objects

<sup>1</sup> After the manuscript for this publication had gone to the printer, the United States Standard Datum was adopted by Canada and Mexico. On account of its international character it will hereafter be known as the North American Datum.



it is not necessary that the reference spheroid should be accurately that which most closely fits the geoid within the area covered, nor that the adopted geodetic datum should be absolutely the best that can be derived from the astronomic observations at hand. It is simply desirable that the reference spheroid and the geodetic datum adopted shall be, if possible, such a close approximation to the truth that any correction which may hereafter be derived from the observations which are now or may become available shall not greatly exceed the probable errors of such corrections. It is, however, very desirable that one spheroid and one geodetic datum be used for the whole country. In fact, this is absolutely necessary if a geodetic survey is to perform fully the function of accurately coordinating all surveys within the area which it covers. This is the most important function of a geodetic survey. To perform this function it is also highly desirable that when a certain spheroid and geodetic datum have been adopted for a country they should be rigidly adhered to without change for all time, unless shown to be largely in error.

In striving to attain the third object, the determination of the figure of the earth, the conditions are decidedly different. This problem concerns itself primarily with astronomic observations of latitude, longitude, and azimuth, and with the geodetic positions of the points at which the astronomic observations were made, but is not concerned with the geodetic positions of other points fixed by the triangulations. The geodetic positions (latitudes and longitudes) of comparatively few points are therefore concerned in this problem. However, in marked contrast to the statements made in preceding paragraphs, it is desirable in dealing with this problem that, with each new important accession of data, a new spheroid fitting the geoid with the greatest possible accuracy, and new values of the geodetic latitudes, longitudes, and azimuths of the highest degree of accuracy, should be derived.

The United States Standard Datum was adopted with reference to positions furnished for geographic positions, but has no reference to the problem of the determination of the figure of the earth. It is adopted with reference to the engineer's problem of furnishing standard positions, and does not affect the scientist's problem of the determination of the figure of the earth.

The principles which guided in the selection of the datum to be adopted were: First, that the adopted datum should not differ widely from the ideal datum for which the sum of the station errors in latitude, longitude, and azimuth should each be zero; second, it was desirable that the adopted datum should produce minimum changes in the publications of the Survey, including its charts; and, third, it was desirable, other things being equal, to adopt that datum which allowed the maximum number of positions already in the office registers to remain unchanged, and therefore necessitated a minimum amount of new computation. These considerations led to the adoption as the United States Standard of the datum which had been in use for many years in the northeastern group of States and along the Atlantic coast as far as North Carolina.

An examination of the station errors available in 1903, on the United States Standard Datum, at 246 latitude stations, 76 longitude stations, and 152 azimuth stations, scattered widely over the United States from Maine to Louisiana and to California, indicated that this datum approaches closely the ideal with which the algebraic sum of the station errors of each class would be zero.<sup>1</sup>

The adopted United States Standard Datum, upon which the positions and azimuths given in this publication depend, may be defined in terms of the position of the station Meades Ranch as follows:

$$\begin{aligned} & \phi = 39 \ 13 \ 26.686 \\ & \lambda = 98 \ 32 \ 30.506 \\ & \alpha \text{ to Waldo} = 75 \ 28 \ 14.52 \end{aligned}$$

<sup>1</sup> This is further borne out in the reduction of 765 astronomic stations in connection with the "Supplementary investigation in 1909 of the figure of the earth and isostasy," by J. F. Hayford, published by the Coast and Geodetic Survey.



Points are then said to be upon the United States Standard Datum when they are connected with the station Meades Ranch by a continuous triangulation, through which the corresponding latitudes, longitudes, and azimuths have been computed on the Clarke spheroid of 1866, as expressed in meters, starting from the above data.

The principal lists of geographic positions heretofore published upon the United States Standard Datum throughout the whole United States are contained in the following publications of the Coast and Geodetic Survey and of other organizations:

Appendix 8 of the Report for 1885, positions in Massachusetts and Rhode Island; Appendix 8 of the Report for 1888, positions in Connecticut; Appendix 8 of the Report for 1893, positions in Pennsylvania, Delaware, and Maryland; Appendix 10 of the Report for 1894, positions in Massachusetts; Appendix 6 of the Report for 1901, positions in Kansas and Nebraska; Appendix 3 of the Report for 1902, positions in Kansas, Missouri, Nebraska, and Colorado; Appendix 4 of the Report for 1903, positions in Kansas, Oklahoma, and Texas; Appendix 9 of the Report for 1904, positions in California; Appendix 5 of the Report for 1905, positions in Texas; Appendix 3 of the Report for 1907, positions in California; Appendix 5 of the Report for 1910, positions in California; Appendix 4 of the Report for 1911, positions in Nebraska, Minnesota, North Dakota, and South Dakota; Appendix 5 of the Report for 1911, positions in Texas; Appendix 6 of the Report for 1911, positions in Florida; Special Publication No. 11, positions in Texas, New Mexico, Arizona, and California; Special Publication No. 13, positions in California, Oregon, and Washington; Appendix EEE, pages 2905-3031, Annual Report of the Chief of Engineers, 1902, positions of points on and near the Great Lakes; in publications of the Massachusetts Harbor and Land Commission; and in various bulletins of the United States Geological Survey.



## TABLES OF POSITIONS

In the tables of positions the latitude and longitude of each point are given on the United States Standard Datum (see p. 7), also the length and azimuth of each line observed over, whether in one or both ways. This is, in a way, a duplication, as the lengths and azimuths are implicitly contained in the corresponding latitudes and longitudes, while, on the other hand, from the latitude and longitude of a single point all the remaining latitudes and longitudes may be derived by means of the given lengths and azimuths. The amount of computation involved in transforming one of these systems of coordinates into the other is so great that it is necessary to have the double system for the convenient use of the tables. Along with the latitude and longitude of each point the lengths and azimuths are given of lines from that point to other points of the triangulation. No lengths or azimuths are repeated, and for a given line the length and azimuth will generally be found opposite the position of the last mentioned of the two stations involved.

For the convenience of the draftsman a column of "seconds in meters" is given, in which is placed the length (in meters) of each small arc of a meridian or parallel corresponding to the seconds of the given latitude or longitude. To facilitate further the use of the tables, a column is given of the logarithms of the lengths. It must be remembered that it is the logarithm which is derived first in the computation, the lengths given in this table being then derived from the corresponding logarithms.

The rule followed in recent publications of this Office has been to give latitudes and longitudes to thousandths of seconds for all points the positions of which are fixed by fully adjusted triangulation. Points, the positions of which are given to hundredths of seconds only, are marked by a footnote as being without check. This note means that the object was pointed on from only two triangulation stations and that therefore an error in either pointing or in the identification of the object from either occupied station would not be detected in the computation.

In the columns giving azimuths, distances, and logarithms of distances the accuracy is indicated to a certain extent by the number of decimal places given, it being understood that in each case two doubtful figures are given. In some cases there is very little doubt of the correctness of the second figure from the right, while in a few cases some doubt may be cast on the third figure from the right.

These tables may be conveniently consulted by using as finders the sketches and index at the end of this publication. In the third column of the index will be found for each point a reference to the page on which its description will be found, and in the fourth column the number of the sketch on which it appears.

For the convenience of those who wish to convert the distances given in the table from meters into feet the following conversion table is here inserted:

Meters	Feet	Feet	Meters
1	3. 280833	1	0. 3048006
2	6. 561667	2	0. 6096012
3	9. 842500	3	0. 9144018
4	13. 123333	4	1. 2192024
5	16. 404167	5	1. 5240030
6	19. 685000	6	1. 8288037
7	22. 965833	7	2. 1336043
8	26. 246667	8	2. 4384049
9	29. 527500	9	2. 7432055
10	32. 808333	10	3. 0480061



## CAPE SABLE TO SAN CARLOS BAY

Station	Latitude and longitude	Sec- onds in meters	Azimuth	Back azimuth	To station	Distance	Loga- rithm
<i>Principal points</i>	° ' "		° ' "	° ' "		<i>Meters</i>	
Cape Sable west base 1885	25 07 19.512 81 04 08.686	600.2 243.3	249 52 59.3	69 54 30.8	Cape Sable east base	6431.59	3.808318
Cape Sable latitude station 1886	25 06 59.582 81 05 13.394	1833.3 375.5	251 18 22.8	71 18 50.3	Cape Sable west base	1913.7	3.281876
Quick 1886	25 04 23.696 81 06 51.199	729.1 1434.8	209 44 11.2	29 44 52.7	Cape Sable astronomic station	5524.2	3.742273
			220 04 45.2 288 40 42.0	40 05 54.1 108 43 05.8	Cape Sable west base Sandy Key 2	7071.1 10046.0	3.849489 4.001992
Palm Point 1886	25 09 28.230 81 08 23.371	868.6 654.6	310 40 05.3	130 41 26.0	Cape Sable astronomic station	7016.9	3.846148
			344 35 14.9	164 35 54.0	Quick	9719.6	3.987650
Cates 1886	25 07 21.785 81 10 56.854	670.3 1592.7	227 50 46.6 274 02 27.7	47 51 51.8 94 04 53.5	Palm Point Cape Sable astronomic station	5798.2 9646.2	3.763295 3.984358
Northwest Cape 1887	25 14 05.088 81 10 24.931	156.6 697.8	338 12 56.1 4 07 19.2	158 13 47.8 184 07 05.6	Palm Point Cates	9173.5 12441.6	3.962537 4.094877
Neil 1887	25 13 52.674 81 13 55.942	1620.8 1565.7	266 17 12.7 311 07 46.6	86 18 42.6 131 10 08.2	Northwest Cape Palm Point	5918.3 12365.6	3.772200 4.092216
Shark 1887	25 16 11.942 81 10 07.309	367.5 204.5	7 12 05.3 56 12 03.9	187 11 57.8 236 10 26.4	Northwest Cape Neil	3934.3 7700.8	3.594871 3.886534
Pinafore 1887	25 16 20.425 81 13 46.261	628.3 1294.3	272 25 35.9 306 27 26.1	92 27 09.4 126 28 52.0	Shark Northwest Cape	6131.9 7006.0	3.787595 3.845473
Rodgers 1887	25 23 13.914 81 09 05.443	428.1 152.2	7 35 38.3 31 42 08.6	187 35 11.8 211 40 08.4	Shark Pinafore	13099.0 14951.9	4.117237 4.174695
Lucknow 1887	25 22 03.383 81 12 53.195	104.1 1487.2	251 09 51.1 336 46 05.7	71 11 28.7 156 47 16.6	Rodgers Shark	6726.7 11767.2	3.827805 4.070674
Fig 1887	25 30 26.523 81 12 33.174	816.1 926.4	336 25 48.7 2 04 14.3	156 27 17.9 182 04 05.7	Rodgers Lucknow	14522.0 15492.1	4.162026 4.190110
Tycoon 1887	25 28 56.644 81 16 48.506	1743.0 1354.9	248 47 12.7 309 09 14.2	68 49 02.6 129 12 33.1	Fig Rodgers	7648.7 16692.6	3.883585 4.222524
Seminole 1887	25 36 49.779 81 16 20.915	1531.8 583.5	331 39 35.2 3 01 48.1	151 41 13.5 183 01 36.2	Fig Tycoon	13397.5 14579.3	4.127025 4.163737
Mikado 1887	25 44 42.205 81 19 40.751	1298.7 1137.4	234 50 38.7 303 21 47.5	54 52 05.0 123 24 51.9	Seminole Fig	6819.7 14296.6	3.833764 4.155232
Reef 1887	25 41 56.512 81 19 23.633	1738.9 658.9	331 37 22.2 2 02 50.4	151 38 41.3 182 02 43.0	Seminole Mikado	10726.6 13372.8	4.030406 4.126223
Alpha 1887	25 38 59.356 81 23 48.175	1826.5 1343.8	233 31 18.9 287 41 42.1	53 33 13.5 107 44 55.6	Reef Seminole	9172.9 13098.9	3.962509 4.117234
Pavilion Key 1887	25 41 26.968 81 21 20.767	829.8 579.0	315 32 41.0 347 22 03.1	135 34 50.9 167 22 46.5	Seminole Mikado Alpha	11945.8 12763.8 6126.3	4.077215 4.105980 3.787200
Freeland 1887	25 44 58.021 81 23 05.841	1785.4 162.8	312 01 40.5 335 43 03.8	132 03 17.0 155 43 49.4	Reef Pavilion Key Alpha	8340.5 7124.5 11099.7	3.921194 3.852754 4.045312
Iroquois 1887	25 45 07.879 81 30 33.648	242.4 937.8	271 21 55.4 293 46 03.1	91 25 09.9 113 50 03.1	Freeland Pavilion Key	12483.8 16844.8	4.066345 4.226466
Coral 1887	25 48 05.362 81 28 08.716	165.0 242.8	304 19 08.6 36 29 16.9	124 21 20.3 216 28 13.9	Freeland Iroquois	10220.2 6792.3	4.009461 3.832019
Pontiac 1887	25 43 40.704 81 25 58.028	1252.5 1617.6	155 54 55.9 243 37 11.5	335 53 59.0 63 38 26.3	Coral Freeland Pavilion Key	8921.2 5356.6 8757.0	3.950425 3.728891 3.942357
Fire 1887	25 49 54.745 81 30 47.702	1684.6 1328.5	307 13 43.1 357 27 34.0	127 14 52.3 177 27 40.1	Coral Iroquois	5562.4 8836.2	3.745263 3.946265
Gomez 1887	25 47 00.012 81 33 36.148	0.4 1007.2	221 05 58.8 257 32 53.7	41 07 12.2 77 35 16.2	Fire Coral	7136.4 9341.2	3.853482 3.970401
Horse Key 1887	25 51 19.345 81 33 57.212	595.3 1593.0	296 14 44.4 301 34 15.5	116 16 07.0 121 36 47.3	Fire Coral Gomez	5884.6 11394.7 8001.8	3.769717 4.056704 3.903190
Flossy 1887	25 48 05.826 81 36 57.874	179.3 1612.2	220 11 05.4 251 58 11.7	40 12 24.1 72 00 52.9	Horse Key Fire	7796.2 10841.8	3.891881 4.035103
Coon Key 1887	25 53 50.285 81 38 08.031	1547.4 223.6	303 36 56.9 349 33 10.7	123 38 46.4 169 33 41.3	Horse Key Flossy	8386.5 10778.4	3.923582 4.032554
Cape Romano 1885	25 50 37.382 81 40 58.150	1150.3 1619.3	218 34 32.4 263 41 16.7	38 35 46.6 83 44 20.2	Coon Key Horse Key Flossy	7594.1 11792.5 8157.1	3.880477 4.071605 3.911534



## CAPE SABLE TO SAN CARLOS BAY—Continued

Station	Latitude and longitude	Seconds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Principal points—Contd</i>	<i>° ' "</i>		<i>° ' "</i>	<i>° ' "</i>		<i>Meters</i>	
Johnson 1887	25 54 46.326 81 41 40.442	1425.5 1125.5	286 14 56.1 351 15 35.6	106 16 28.9 171 15 54.1	Coon Key Cape Romano	6158.5 7750.6	3.789473 3.889335
Caximbas 1885	25 54 35.300 81 43 47.597	1086.2 1324.7	264 30 56.2 327 11 40.8	84 31 51.8 147 12 54.8	Johnson Cape Romano	3555.2 8709.5	3.550862 3.939994
Big Marco 1885	25 57 35.230 81 44 59.737	1084.1 1661.9	340 04 04.4	160 04 35.9	Caximbas	5889.6	3.770086
Little Marco 1885	26 00 56.409 81 45 57.311	1735.9 1593.7	345 29 38.8	165 30 04.0	Big Marco	6394.6	3.805816
Johns Pass 1885	26 04 14.818 81 47 38.752	456.0 1077.1	335 12 08.5	155 12 53.0	Little Marco	6725.5	3.827726
Gordons Pass 1885	26 05 26.338 81 48 03.400	810.5 94.5	340 35 02.4 342 42 35.3	160 36 23.0 162 42 46.1	Big Marco Johns Pass	15370.6 2305.1	4.186692 3.362684
Doctors Pass 1885	26 10 35.069 81 48 53.132	1079.2 1475.5	351 43 25.0	171 43 46.9	Gordons Pass	9600.7	3.982303
Wiggins Pass 1884	26 17 21.790 81 49 53.399	670.6 1481.4	352 23 03.0	172 23 29.6	Doctors Pass	12627.8	4.101327
Big Hickory 1884	26 21 17.142 81 51 22.770	527.6 631.3	341 06 08.0	161 06 47.6	Wiggins Pass	7655.2	3.883959
Big Carlos 1884	26 24 18.163 81 53 51.861	559.0 1437.3	323 25 10.8	143 26 17.0	Big Hickory	6936.6	3.841144
Little Carlos 1884	26 23 21.158 81 52 53.042	651.2 1470.3	326 44 26.3 137 06 09.8	146 45 06.4 317 05 43.7	Big Hickory Big Carlos	4563.9 2394.9	3.659334 3.379286
Oyster Key 1884	26 22 18.377 81 50 23.403	565.6 648.7	41 08 18.8 114 59 01.6	221 07 52.4 294 57 55.1	Big Hickory Little Carlos	2502.1 4576.0	3.398302 3.660496
Bowditch Point 2 1883	26 27 12.309 81 57 28.967	378.8 802.4	311 41 00.6	131 42 37.2	Big Carlos	8056.8	3.906164
Mound Key 1884	26 25 15.693 81 51 49.673	483.0 1376.5	336 19 55.6 26 29 21.0 62 24 16.5 110 54 55.7	156 20 33.9 206 28 52.8 242 23 22.3 290 52 24.9	Oyster Key Little Carlos Big Carlos Bowditch Point 2	5957.8 3638.1 3821.1 10062.6	3.775084 3.565289 3.582192 4.002712
Point Ybel 2 1883	26 27 14.385 82 00 48.973	442.7 1356.7	270 38 55.6 295 06 41.2	90 40 24.8 115 09 46.9	Bowditch Point 2 Big Carlos	5541.2 12766.9	3.743607 4.106086
Summerlin 1884	26 29 22.290 82 00 45.021	686.0 1246.9	306 21 49.7 1 35 36.0	126 23 17.1 181 35 34.2	Bowditch Point 2 Point Ybel 2	6744.8 3937.8	3.828972 3.595256

## CALOOSAHATCHEE RIVER TO CHARLOTTE HARBOR

<i>Principal points</i>							
Middle Point 1858	26 28 09.145 82 03 35.122	281.4 972.9	244 27 03.7 290 06 00.0	64 28 19.6 110 07 14.0	Summerlin Point Ybel 2	5221.5 4901.4	3.717793 3.690318
Sword Point 1861	26 31 28.730 82 02 28.511	884.2 789.3	323 37 25.2 16 43 12.4	143 38 11.4 196 42 42.7	Summerlin Middle Point	4832.6 6413.3	3.684180 3.807082
Punta Rasa 1859	26 29 12.127 82 00 48.081	373.2 1331.7	67 16 45.9 146 31 16.4	247 15 31.4 326 30 31.6	Middle Point Sword Point	5016.2 5040.6	3.700376 3.702483
South End 1884	26 29 48.102 82 03 25.846	1480.4 715.7	207 08 16.6 280 06 09.1 317 25 23.0	27 08 42.2 100 07 20.9 137 26 32.9	Sword Point Summerlin Point Ybel 2	3480.1 4524.2 6423.3	3.541590 3.655538 3.807759
Caloosa 1860	26 29 32.518 82 03 19.451	1000.8 538.6	201 31 14.0 9 36 08.7	21 31 36.7 189 36 01.7	Sword Point Middle Point	3844.6 2602.3	3.584850 3.415352
White 1860	26 32 09.296 82 04 09.934	286.1 275.0	293 57 51.6 344 18 20.1	113 58 36.9 164 18 39.8	Sword Point South End	3072.9 4513.5	3.487551 3.654515
Sanibel east base 1858	26 26 51.149 82 01 21.022	1574.1 582.3	122 52 36.1 191 52 29.4	302 51 36.3 11 52 44.1	Middle Point Punta Rasa	4422.9 4433.5	3.645705 3.646751
Sanibel west base 1858	26 25 58.014 82 03 08.331	1785.4 230.8	169 34 48.4 241 10 58.3	349 34 36.5 61 11 46.1	Middle Point Sanibel east base	4103.25 3393.2	3.613128 3.530605
Sanibel 1858	26 25 51.855 82 06 48.894	1595.8 1354.8	231 47 00.7 268 12 35.6	51 48 27.0 88 14 13.8	Middle Point Sanibel west base	6931.6 6114.4	3.834520 3.786356
Havelock 1858	26 30 05.720 82 06 10.078	176.0 279.1	309 53 04.5 7 50 18.7	129 54 13.6 187 50 01.4	Middle Point Sanibel	5593.6 7886.4	3.747695 3.896877
Blind Pass 1858	26 28 51.801 82 11 07.352	1594.2 203.6	254 32 06.9 307 42 14.6	74 34 19.5 127 44 09.7	Havelock Sanibel	8541.3 9051.7	3.931524 3.956730
Captiva 1858	26 33 29.591 82 12 19.539	910.7 540.8	301 30 07.8 346 50 12.8	121 32 52.8 166.50 45.0	Havelock Blind Pass	11999.5 8779.6	4.079164 3.943474



## TRIANGULATION ALONG THE WEST COAST OF FLORIDA.

13

## CALOOSAHATCHEE RIVER TO CHARLOTTE HARBOR—Continued

Station	Latitude and longitude	Sec- onds in meters	Azimuth	Back azimuth	To station	Distance	Loga- rithm
<i>Principal points—Contd</i>	<i>° ' "</i>		<i>° ' "</i>	<i>° ' "</i>		<i>Meters</i>	
Lucknow 1858	26 35 31.554 82 08 03.721	971.1 103.0	342 34 33.8 62 05 02.2	162 35 24.6 242 03 07.7	Havelock Captiva	10509.5 8013.0	4.021584 3.903797
Boca Captiva 1859	26 36 40.539 82 13 28.750	1247.6 795.3	283 15 47.6 341 56 40.5	103 18 13.1 161 57 11.5	Lucknow Captiva	9240.1 6180.8	3.965675 3.791043
Bocillas 1859	26 42 12.381 82 10 08.486	381.0 234.6	344 21 53.2 28 28 57.2	164 22 49.2 208 27 27.4	Lucknow Boca Captiva	12809.3 11617.7	4.107527 4.065122
Boca Grande 1859	26 43 00.210 82 15 48.293	6.5 1334.8	278 53 07.1 341 42 58.1	98 55 39.8 161 44 00.7	Bocillas Boca Captiva	9507.5 12305.4	3.978065 4.090096
Oso 1858	26 46 57.017 82 12 53.344	1753.7 1473.6	332 30 47.6 33 34 03.1	152 32 01.8 213 32 44.4	Bocillas Boca Grande	9873.8 8745.6	3.994485 3.941790
El Gabo 1859	26 47 01.856 82 08 54.505	57.1 1505.6	12 55 43.3 56 59 03.1 88 43 18.1	192 55 10.0 236 55 56.9 268 41 30.5	Bocillas Boca Grande Oso	9140.5 13639.7 6599.4	3.960972 4.134804 3.819502
Mound 1860	26 48 19.653 82 10 47.540	604.8 1313.0	307 28 36.1 53 48 26.7 112 54 00.3	127 29 27.0 233 47 30.0 292 52 27.4	El Gabo Oso Flat	3934.5 4306.1 6169.3	3.594895 3.634088 3.790233
Torrey 1859	26 46 34.660 82 03 42.276	1066.7 1167.9	52 55 23.6 95 33 43.9	232 52 29.8 275 31 23.2	Bocillas El Gabo	13381.5 8665.8	4.126504 3.937807
Punta Gorda 1859	26 53 32.734 82 05 32.716	1007.5 902.9	346 39 36.8 24 51 48.0 42 04 16.6	166 40 26.7 204 50 16.9 222 01 54.5	Torrey El Gabo Mound	13223.4 13257.5 12976.6	4.121343 4.122463 4.113160
Pelican 1859	26 50 14.528 82 03 46.842	447.1 1293.4	55 06 31.7 154 24 28.5	235 04 12.9 334 23 40.6	El Gabo Punta Gorda	10361.4 6764.1	4.015418 3.830213
Dana 1859	26 51 18.920 82 09 25.938	582.3 716.0	237 22 33.3 281 55 51.7 312 38 55.9	57 24 18.7 101 58 24.8 132 41 31.0	Punta Gorda Pelican Torrey	7642.1 9569.5 12907.7	3.883211 3.980888 4.110850
Locust Point 1860	26 55 46.553 82 08 04.472	1432.8 123.4	314 30 56.0 325 09 08.9 15 16 19.1	134 32 04.7 145 11 05.5 195 15 42.3	Punta Gorda Pelican Dana	5873.4 12449.2 8538.3	3.768890 4.095142 3.931369
Shoal Point 1860	26 55 28.182 82 09 15.909	867.4 438.9	299 58 05.0 316 43 30.0 2 04 01.3	119 59 46.0 136 45 58.9 182 03 56.8	Punta Gorda Pelican Dana	7110.2 13254.3 7676.5	3.851880 4.122356 3.885165
Bruce 1860	26 53 46.891 82 10 17.588	1443.2 485.3	208 37 40.4 273 09 15.9 301 11 22.6	28 38 08.3 93 11 24.7 121 14 19.3	Shoal Point Punta Gorda Pelican	3551.8 7873.7 12611.8	3.550443 3.896179 4.100776
Palmetto 1860	26 56 02.076 82 09 59.920	63.9 1653.1	310 39 49.9 6 41 02.1	130 40 09.8 186 40 54.1	Shoal Point Bruce	1600.8 4189.1	3.204331 3.622116
Myakka 1860	26 56 10.308 82 11 02.307	317.2 64.6	278 22 13.7 293 49 26.1 344 22 45.6	98 22 41.9 113 50 14.2 164 23 05.8	Palmetto Shoal Point Bruce	1739.6 3208.9 4583.2	3.240458 3.506361 3.661166
Eureka 1860	26 54 52.170 82 05 49.846	1605.6 1375.4	42 16 30.4 74 48 14.8 101 02 39.2 114 15 56.4	222 14 52.7 254 46 13.6 281 01 05.9 294 14 55.4	Dana Bruce Shoal Point Locust Point	8868.2 7656.4 5792.5 4074.1	3.947834 3.884027 3.762864 3.610028
Grassy Point 1860	26 57 10.702 82 05 59.440	329.4 1639.6	356 26 50.4 53 06 19.8	176 26 54.7 233 05 23.1	Eureka Locust Point	4271.8 4313.2	3.630615 3.634799
Cooper 1860	26 55 34.162 82 05 10.080	1051.4 278.1	94 32 34.3 155 22 56.0	274 31 15.3 335 22 33.7	Locust Point Grassy Point	4826.4 3268.4	3.683621 3.514331
Live Oak Point 1860	26 57 09.496 82 03 44.074	292.3 1215.8	38 57 53.2 70 27 08.0 90 34 39.8	218 57 14.2 250 25 10.0 270 33 38.5	Cooper Locust Point Grassy Point	3773.3 7623.4 3734.0	3.576727 3.882147 3.572169
Willow Point 1860	26 56 15.488 82 03 02.484	476.7 68.5	70 08 30.6 109 12 20.2 145 23 21.8	250 07 32.8 289 11 00.1 325 23 03.0	Cooper Grassy Point Live Oak Point	3742.9 5168.6 2019.7	3.573203 3.713373 3.305285
Piney Point 1860	26 57 58.502 82 02 16.867	1800.6 465.2	21 38 57.4 57 54 54.7	201 38 36.7 237 54 15.2	Willow Point Live Oak Point	3411.0 2839.0	3.532885 3.453172
New Point 1860	26 56 54.888 82 02 00.056	1689.3 1.6	54 51 08.9 98 54 44.6 166 40 37.6	234 50 40.6 278 53 57.5 346 40 30.0	Willow Point Live Oak Point Piney Point	2106.2 2904.2 2012.0	3.323497 3.463024 3.303631
Middle 1860	26 57 28.898 82 00 49.777	889.4 1373.0	61 38 10.9 82 55 49.8 110 46 40.2	241 37 39.0 282 54 30.8 290 46 00.7	New Point Live Oak Point Piney Point	2203.1 4844.5 2569.0	3.343025 3.685245 3.409764
Trout 1860	26 57 06.565 82 00 59.105	202.0 1630.3	91 08 46.5 126 42 04.9 200 31 15.7	271 07 31.7 306 41 29.6 20 31 19.9	Live Oak Point Piney Point Middle	4551.2 2674.9 733.9	3.658130 3.427313 2.865659
Peace Creek 1860	26 58 18.531 82 00 38.419	570.3 1059.5	11 35 21.1 14 26 44.6 77 12 51.8	191 35 16.0 194 26 35.3 257 12 07.2	Middle Trout Piney Point	1559.3 2287.2 2784.2	3.192941 3.359308 3.444699



## CALOOSAHATCHEE RIVER TO CHARLOTTE HARBOR—Continued

Station	Latitude and longitude	Sec- onds in meters	Azimuth	Back azimuth	To station	Distance	Loga- rithm
<i>Principal points—Contd</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
Darling 1859	26 40 51.489 82 06 44.842	1584.6 1239.9	162 33 23.1 205 31 26.5	342 32 24.8 25 32 48.7	El Gabo Torrey	11948.5 11704.9	4.077315 4.068368
Belinda 1859	26 42 22.245 82 05 00.300	684.6 8.3	45 59 03.6 87 58 43.4 143 04 09.8	225 58 16.6 267 56 24.9 323 02 24.4	Darling Bocillas El Gabo	4019.2 8524.5 10767.4	3.604142 3.930671 4.032112
Dorr 1861	26 40 37.841 82 05 23.496	1164.6 649.8	100 35 03.0 191 17 07.0	280 34 26.5 11 17 17.4	Darling Belinda	2288.0 3276.5	3.359458 3.515414
Matlacha 1861	26 39 25.931 82 06 17.817	798.1 492.7	164 09 29.5 214 09 43.5	344 09 19.0 34 10 09.5	Darling Dorr	2737.1 2674.7	3.437296 3.427277
Rubber 1861	26 38 43.893 82 05 46.853	1350.8 1295.8	146 30 03.2 157 47 27.8 190 26 03.4	326 29 47.7 337 47 01.8 10 26 13.9	Matlacha Darling Dorr	1551.5 4241.7 3565.8	3.190752 3.627541 3.552162
Gull 1861	26 39 11.175 82 04 52.313	343.9 1447.1	60 54 03.6 100 52 36.3 134 46 55.4	240 53 39.1 280 51 56.2 314 46 04.9	Rubber Matlacha Darling	1726.3 2407.8 4383.3	3.237120 3.381626 3.641805
Owl 1861	26 37 22.993 82 05 06.765	707.6 187.2	155 59 47.1 186 50 42.0	335 59 29.1 6 50 48.5	Rubber Gull	2725.5 3353.3	3.435452 3.525475
Meridian 1860	26 36 57.538 82 03 08.498	1770.7 235.1	103 28 23.5 145 05 03.0	283 27 30.5 325 04 16.5	Owl Gull	3364.2 5016.1	3.526876 3.700362
Lumber 1860	26 35 54.711 82 03 52.366	1683.7 1448.8	142 51 28.4 212 06 46.7	322 50 55.1 32 07 06.4	Owl Meridian	3408.6 2282.9	3.532574 3.358486
Deer 1860	26 35 42.364 82 02 46.969	1303.7 1299.7	101 51 51.3 165 33 48.7	281 51 22.0 345 33 39.1	Lumber Meridian	1848.9 2389.0	3.266921 3.378217
Narrows 1860	26 34 53.667 82 04 07.731	1651.3 213.9	192 44 54.1 236 08 33.2	12 45 01.0 56 09 09.4	Lumber Deer	1926.5 2690.9	3.284768 3.429902
Grape 1860	26 33 57.331 82 03 50.327	1764.4 1392.9	164 28 23.1 208 28 16.6	344 28 15.3 28 28 45.0	Narrows Deer	1799.1 3677.4	3.255067 3.565535
Bailey 1860	26 33 38.838 82 04 45.530	1195.2 1260.1	204 25 49.1 249 33 57.1	24 26 06.0 69 34 21.8	Narrows Grape	2529.1 1630.4	3.402967 3.212300
Buttonwood 1860	26 32 53.537 82 03 29.224	1647.6 809.0	327 12 55.3 39 36 53.3 123 26 00.9 163 26 01.2	147 13 22.5 219 36 35.2 303 25 26.8 343 25 51.8	Sword Point White Bailey Grape	3104.4 1767.4 2530.7 2048.4	3.491978 3.247341 3.403246 3.311407
Brown 1860	26 39 37.281 82 09 10.533	1147.4 291.2	346 15 46.2 52 43 25.2 161 26 52.2	166 16 16.1 232 41 29.4 341 26 26.1	Lucknow Boca Captiva Bocillas	7785.0 8977.6 5035.1	3.891260 3.953162 3.702011
Las 1859	26 42 02.803 82 10 43.865	86.2 1212.7	101 52 34.5 158 26 47.8 198 10 14.4 253 13 25.2 330 02 38.6	281 50 17.7 338 25 49.5 18 11 03.6 73 13 41.1 150 03 20.6	Boca Grande Oso El Gabo Bocillas Brown	8598.5 9736.1 9687.2 1021.5 5168.8	3.934421 3.988386 3.986199 3.009219 3.713393
Oyster 1892	26 29 23.378 82 01 06.093	719.5 168.7	353 11 13.1 61 02 45.7	173 11 20.7 241 01 39.3	Point Ybel 2 Middle Point	3997.9 4717.7	3.601842 3.673731
Bird Island 1892	26 30 45.389 82 01 57.639	1396.9 1596.2	330 30 22.0 29 19 05.5 147 20 56.4	150 30 45.0 209 18 22.1 327 20 42.7	Oyster Middle Point Sword Point	2899.6 5514.5 1584.2	3.462336 3.741505 3.199819
Pine 1892	26 30 37.116 81 59 14.074	1142.3 389.7	22 51 01.3 53 49 10.9 57 48 36.0 93 13 40.3	202 50 18.8 233 48 20.9 237 46 39.4 273 12 27.3	Point Ybel 2 Oyster Middle Point Bird Island	6770.1 3843.5 8544.3 4536.2	3.830595 3.584725 3.931675 3.656689
A 1892	26 32 01.989 81 59 49.069	61.2 1375.1	14 30 18.8 65 38 32.3	194 30 07.9 245 37 08.4	Pine Bird Island	2698.0 5713.3	3.431040 3.756884
B 1892	26 31 45.908 81 57 06.538	1412.8 181.0	59 03 46.8 99 50 24.5	239 02 49.9 279 49 38.5	Pine A	4117.2 2897.7	3.614599 3.462057
Red Fish Point 1892	26 32 25.103 81 56 51.805	772.6 1435.8	18 36 41.9 49 50 29.2 77 42 08.5	198 36 35.3 229 49 25.7 257 41 15.9	B Pine A	1272.8 5152.3 3337.9	3.104765 3.712003 3.523472
Palmetto Point 1892	26 32 23.804 81 56 15.122	732.6 418.6	50 40 24.3 92 15 14.6	230 40 01.3 272 14 53.2	B Red Fish Point	1840.2 1017.9	3.264856 3.007714
Harney Point 1892	26 33 32.080 81 56 12.695	987.3 351.5	1 49 53.6 27 44 50.3	181 49 52.5 207 44 32.8	Palmetto Point Red Fish Point	2102.3 2329.0	3.322098 3.367172
Harris 1892	26 33 39.333 81 55 14.682	1210.5 406.5	35 44 51.8 82 05 22.5	215 44 24.8 282 04 56.6	Palmetto Point Harney Point	2863.9 1621.1	3.456958 3.209813
C 1892	26 34 17.005 81 55 50.935	523.3 1409.7	319 07 27.0 23 32 20.6	139 07 43.8 203 32 10.3	Harris Harney Point	1533.25 1508.1	3.185614 3.178418
Travers 1892	26 34 09.373 81 54 25.959	288.5 718.4	55 34 08.2 95 42 30.7	235 33 46.4 275 41 52.7	Harris C	1635.0 2363.4	3.213512 3.373545



## CALOOSAHATCHEE RIVER TO CHARLOTTE HARBOR—Continued

Station	Latitude and longitude	Seconds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Principal points—Contd</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
Four Mile Point 1892	26 36 27.783 81 54 43.565	855.0 1205.3	353 28 26.8 24 51 22.8	173 28 34.7 204 50 52.7	Travers C	4287.4 4435.5	3.632197 3.646946
No Name 1892	26 36 12.057 81 53 37.544	371.0 1038.7	19 32 20.4 46 11 55.6 104 50 40.6	199 31 58.7 226 10 55.9 284 50 10.9	Travers C Four Mile Point	4006.3 5114.8 1889.6	3.602745 3.708831 3.276377
Edison 1892	26 38 12.536 81 53 03.773	385.8 104.4	14 08 38.0 40 34 44.6	194 08 22.9 220 33 59.9	No Name Four Mile Point	3823.7 4244.3	3.582488 3.627803
Hancock 1892	26 38 54.087 81 53 44.391	1664.5 1227.9	318 41 51.2 357 49 27.6 19 58 52.7	138 42 09.4 177 49 30.8 199 58 26.2	Edison No Name Four Mile Point	1702.2 4990.2 4790.9	3.231000 3.698120 3.680419
Sawmill 1892	26 39 43.052 81 52 37.036	1324.9 1024.3	14 52 03.2 51 01 52.4	194 51 51.2 231 01 22.2	Edison Hancock	2882.2 2395.9	3.459721 3.379477
Experimental 1892	26 39 43.956 81 50 50.542	1352.8 1397.8	52 38 37.9 89 27 56.1	232 37 38.1 269 27 08.3	Edison Sawmill	4636.0 2945.0	3.666145 3.469090
Marsh Point 1892	26 40 35.088 81 51 18.672	1079.8 516.3	333 41 42.7 53 32 17.1	153 41 55.3 233 31 41.9	Experimental Sawmill	1755.4 2694.4	3.244375 3.430468
Caloosa 1892	26 41 32.858 81 49 35.939	1011.2 993.6	31 36 54.0 57 57 42.1	211 36 20.5 237 56 56.0	Experimental Marsh Point	3935.5 3350.9	3.594998 3.525165
Gasparilla Island rear range L. H. 1909	26 43 01.366 82 15 39.877	42.0 1102.2	184 33 22.2 300 14 22.5	4 33 36.4 120 17 17.4	Coral Brown	10929.3 12462.6	4.038593 4.095609
Useppa Inn 1909	26 39 59.878 82 12 39.509	1842.8 1092.6	138 15 15.3 276 50 57.4	318 13 54.3 96 52 31.2	Gasparilla Island rear range L. H. Brown	7487.5 5820.5	3.874337 3.764959
Jug Point 1909	26 42 13.745 82 10 28.994	423.0 801.4	335 44 36.8 41 13 18.7 99 41 53.5	155 45 12.0 221 12 20.1 279 39 33.7	Brown Useppa Inn Gasparilla Island rear range L. H.	5281.4 5476.7 8717.4	3.722751 3.738519 3.940386
Cape Haze 1909	26 47 00.796 82 09 10.825	24.5 299.0	13 44 40.6 24 00 46.8 55 35 43.9	193 44 05.4 203 59 13.0 235 32 48.8	Jug Point Useppa Inn Gasparilla Island rear range L. H.	9094.6 14180.3 13033.3	3.958786 4.151084 4.115055
Charlotte Harbor L. H. 1909	26 45 34.920 82 06 38.769	1074.7 1071.2	44 03 42.6 45 47 44.2 72 29 43.6 122 11 08.9	224 01 00.5 225 46 00.6 252 25 40.1 302 10 00.4	Useppa Inn Jug Point Gasparilla Island rear range L. H. Cape Haze	14343.9 8877.9 15682.4 4963.1	4.156667 3.948308 4.195413 3.695753
Torrey 1909	26 46 33.925 82 03 41.666	1044.1 1151.0	54 35 54.5 69 38 56.2 95 13 02.2	234 32 51.2 249 37 36.5 275 10 33.9	Jug Point Charlotte Harbor L. H. Cape Haze	13813.8 5219.1 9130.5	4.140314 3.717592 3.960494
Mellie 1860	26 35 05.177 82 12 23.747	159.3 657.1	177 14 55.7 212 32 09.6	357 14 48.6 32 33 36.2	Useppa Inn Brown	9080.2 9934.5	3.958093 3.997147
Demorest 1909	26 35 31.838 82 08 03.861	979.8 106.8	137 16 11.5 166 17 00.6 83 30 25.4	317 14 08.0 346 16 30.7 263 28 29.1	Useppa Inn Brown Mellie	11233.2 7775.6 7238.0	4.050504 3.890734 3.859616
Captiva Pass 1909	26 36 38.856 82 13 24.562	1195.8 679.4	329 43 35.3 191 23 07.2 231 58 33.6	149 44 02.5 11 23 27.4 52 00 27.5	Mellie Useppa Inn Brown	3338.1 6310.9 8917.5	3.523504 3.800091 3.950245
Punta Gorda Hotel cupola 1909	26 56 09.679 82 03 05.234	297.9 144.4	225 35 23.9 243 16 49.3	45 36 30.4 63 17 46.5	Peace Creek Trout	5668.0 3895.0	3.753426 3.590502
Live Oak Point 1909	26 57 11.256 82 03 46.744	346.4 1289.4	248 15 15.1 271 46 40.3 328 51 26.9	68 16 40.4 91 47 56.3 148 51 45.7	Peace Creek Trout Punta Gorda Hotel cupola	5591.6 4626.2 2214.2	3.747534 3.665227 3.345220
Cooper 1909	26 55 33.297 82 05 09.535	1024.8 263.1	217 08 23.9 251 54 31.7	37 09 01.4 71 55 28.0	Live Oak Point 1909 Punta Gorda Hotel cupola	3782.3 3607.4	3.577757 3.557198
Grassy Point 1909	26 57 13.032 82 05 43.755	401.1 1206.9	270 57 47.2 294 01 20.2 342 54 12.7	90 58 40.2 114 02 32.0 162 54 28.2	Live Oak Point 1909 Punta Gorda Hotel cupola Cooper 1909	3228.0 4787.8 3211.5	3.508929 3.680136 3.506702
Locust Point 1909	26 55 49.773 82 08 06.711	1531.9 185.1	236 58 30.4 250 42 31.8 265 46 04.8 275 54 41.2	56 59 35.2 70 44 29.6 85 48 21.4 95 56 01.5	Grassy Point 1909 Live Oak Point 1909 Punta Gorda Hotel cupola Cooper 1909	4702.9 7597.2 8339.6 4914.3	3.672370 3.880654 3.921144 3.691463
<i>Supplementary points</i>							
Punta Rasa Hotel cupola 1909	26 29 11.718 82 00 47.062	360.6 1303.4	0 50 23.3 124 14 58.7 104 17 45.0	180 50 22.4 304 14 50.2 284 16 34.2	Point Ybel 2 Oyster South End	3611.3 637.6 4537.7	3.557666 2.804558 3.656837

## CALOOSAHATCHEE RIVER TO CHARLOTTE HARBOR—Continued

Station	Latitude and longitude	Seconds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Supplementary points—Continued</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
Middle Point 1909	26 28 08.566	263.6	184 19 29.9	4 19 33.6	South End	3072.0	3.487424
1909	82 03 34.211	947.6	240 41 20.3	60 42 26.3	Oyster	4704.4	3.672500
			247 13 00.6	67 14 15.1	Punta Rasa Hotel	5021.0	3.700792
			290 00 18.5	110 01 32.1	cupola		
					Point Ybel 2	4871.6	3.687670
Middle Point (U. S. E.)	26 28 09.144	281.4	241 01 41.4	61 02 47.9	Oyster	4717.9	3.673747
1909	82 03 35.128	973.0	247 30 54.1	67 32 09.0	Punta Rasa Hotel	5037.6	3.702222
			304 58 59.4	124 58 59.8	cupola		
					Middle Point 1909	31.0	1.491502
Punta Rasa astronomic station	26 29 13.774	423.9	23 38 15.7	203 38 15.3	Punta Rasa Hotel	69.1	1.839257
1874	82 00 46.062	1275.7	66 41 58.3	246 40 43.4	cupola		
			118 02 59.7	298 02 50.8	Middle Point 1909	5071.2	3.705115
					Oyster	628.6	2.798355
Punta Rasa rear range light	26 29 22.393	689.2	266 36 59.6	86 37 07.9	Oyster	514.0	2.710945
1909	82 01 24.619	681.8	287 31 32.2	107 31 49.0	Punta Rasa Hotel	1090.8	3.037742
			345 55 37.9	165 55 53.8	cupola		
			57 40 27.2	237 39 29.5	Point Ybel 2	4061.3	3.608965
			103 16 07.6	283 15 13.6	Middle Point 1909	4248.0	3.628184
					South End	3449.2	3.537719
Punta Rasa front range light	26 29 04.876	150.0	181 25 56.9	1 25 57.1	Oyster	569.6	2.755545
1909	82 01 06.607	183.0	248 44 39.6	68 44 48.3	Punta Rasa Hotel	580.8	2.764036
			351 49 27.8	171 49 35.6	cupola		
			67 02 15.8	247 01 10.0	Point Ybel 2	3435.3	3.535963
			109 02 31.2	289 01 29.1	Middle Point 1909	4440.4	3.647425
					South End	4079.2	3.610570
Sanibel Island L. H.	26 27 09.592	295.2	111 59 33.5	291 58 21.2	Middle Point 1909	4848.5	3.685609
1909	82 00 51.909	1438.1	138 51 16.1	318 50 07.5	South End	6478.9	3.811503
			174 33 00.9	354 32 54.6	Oyster	4136.0	3.616579
			182 02 44.2	2 02 46.4	Punta Rasa Hotel	3760.8	3.575286
			208 52 23.4	28 52 24.7	cupola		
					Point Ybel 2	168.5	2.226516
Punta Rasa, Schultz' house,	26 29 05.604	172.5	12 43 38.9	192 43 26.4	Point Ybel 2	3509.0	3.545178
flagstaff	82 00 21.068	583.5	71 50 45.3	251 49 19.2	Middle Point 1909	5630.3	3.750530
1909			104 38 56.2	284 38 44.6	Punta Rasa Hotel	744.1	2.871648
					cupola		
St. James City dock ware-	26 29 30.66	943.6	275 18 14	95 19 55	Punta Rasa Hotel	6289.7	3.79863
house, east gable <sup>1</sup>	82 04 33.19	919.2	304 00 59	124 02 39	cupola		
1900					Point Ybel 2	7493.9	3.87471
Harris' house <sup>1</sup>	26 33 23.85	734.1	54 48 10	234 47 29	Red Fish Point	3136.3	3.496420
1892	81 55 19.28	533.7	99 43 25	279 43 01	Harney Point	1499.9	3.178061
Rylander's house <sup>1</sup>	26 37 11.73	361.1	60 46 38	240 45 59	Four Mile Point	2770.0	3.442475
1892	81 53 16.19	447.8	166 05 32	346 05 19	Hancock	3245.2	3.511248
Edison's house <sup>1</sup>	26 38 02.76	85.0	136 56 46	316 56 22	Hancock	2161.8	3.334821
1892	81 52 51.03	1411.4	187 08 43	7 08 49	Sawmill	3110.7	3.492857
Edison's laboratory <sup>1</sup>	26 38 04.56	140.3	121 24 24	301 24 17	Edison	471.1	2.673134
1892	81 52 49.24	1362.0	186 21 02	6 21 07	Sawmill	3049.9	3.484290
Fort Myers, Parker's house <sup>1</sup>	26 38 35.26	1085.2	103 23 58	283 23 18	Hancock	2502.0	3.398288
1892	81 52 16.39	453.3	164 41 41	344 41 32	Sawmill	2163.3	3.335106
Fort Myers, Methodist	26 38 45.25	1392.6	95 21 32	275 20 45	Hancock	2914.8	3.464612
Church tower <sup>1</sup>	81 51 59.46	1644.6	149 42 31	329 42 14	Sawmill	2060.1	3.313899
1892							
Fort Myers, Caloosa hotel <sup>1</sup>	26 38 49.87	1534.8	92 25 52	272 25 02	Hancock	3068.3	3.486891
1892	81 51 53.55	1481.0	143 41 44	323 41 24	Sawmill	2031.0	3.307717
Experimental station	26 39 16.85	518.7	108 10 02	288 09 22	Sawmill	2586.6	3.412727
house <sup>1</sup>	81 51 08.16	225.7	173 07 04	353 06 59	Marsh Point	2425.2	3.384742
1892							
West Jetty	26 41 13.40	412.4	20 23 53	200 23 36	Experimental	2936.7	3.467859
1892	81 50 13.53	374.0	56 47 50	236 47 21	Marsh Point	2152.7	3.332979
			240 02 18	60 02 36	Caloosa	1199.5	3.078994
East Jetty	26 41 20.40	627.8	23 40 20	203 39 59	Experimental	3240.7	3.510640
1892	81 50 03.49	96.5	56 09 00	236 08 26	Marsh Point	2503.1	3.398475
			243 16 25	63 16 37	Caloosa	852.8	2.930825
Roche's windmill, Useppa	26 39 38.250	1177.2	142 23 34.3	322 22 16.0	Gasparilla Island rear	7891.8	3.897178
Island	82 12 45.638	1262.1	194 17 11.7	14 17 14.4	range L. H.		
1909			270 16 26.4	90 18 02.9	Useppa Inn	686.9	2.836868
			355 52 38.0	175 52 47.8	Brown	5948.5	3.774409
					Mellie	8425.8	3.925613
Roche's water tank, Useppa	26 39 38.381	1181.2	142 25 47.2	322 24 29.1	Gasparilla Island rear	7882.9	3.896684
Island	82 12 45.982	1271.6	195 08 21.5	15 08 24.4	range L. H.		
1909			270 18 43.2	90 20 19.9	Useppa Inn	685.4	2.835945
			355 48 52.9	175 49 02.9	Brown	5958.0	3.775104
					Mellie	8430.5	3.925854

<sup>1</sup> No check on this position.



## CALOOSAHATCHEE RIVER TO CHARLOTTE HARBOR—Continued

Station	Latitude and longitude	Seconds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Supplementary points—Continued</i>						<i>Meters</i>	
Roche's house, north gable, Useppa Island 1909	26 39 46.324 82 12 40.615	1425.7 1123.1	184 11 43.8 272 43 46.5 356 54 43.5	4 11 44.2 92 45 20.8 176 54 51.1	Useppa Inn Brown Mellie	418.3 5816.1 8665.1	2.621455 3.764635 3.937774
Lacosta Island, quarantine building flagstaff 1909	26 42 21.767 82 14 45.964	669.9 1270.6	129 16 46.8 177 40 53.8 192 38 18.9 271 58 28.3	309 16 22.6 357 40 49.5 12 38 48.8 92 00 23.9	Gasparilla Island rear range L. H. Pelayo Plow Jug Point	1925.1 6579.8 8361.1 7107.7	3.284457 3.818211 3.922264 3.851727
Lacosta Island, pilot's look-out 1909	26 42 30.819 82 15 03.846	948.5 106.3	133 21 06.0 182 04 23.2 196 25 41.2 273 56 21.0	313 20 49.8 2 04 26.9 16 26 19.1 93 58 24.6	Gasparilla Island rear range L. H. Pelayo Plow Jug Point	1369.6 6299.9 8215.4 7615.8	3.136587 3.799336 3.914629 3.881714
Gasparilla Island, old quarantine building flagstaff 1909	26 43 10.056 82 15 36.144	309.5 999.0	30 30 57.1 192 12 04.2 205 25 23.7 280 55 06.5	210 30 55.6 12 12 22.5 25 26 16.2 100 57 24.6	Gasparilla Island rear range L. H. Pelayo Plow Jug Point	203.3 5300.3 7490.3 8647.1	2.308052 3.724304 3.874500 3.936871
Boca Grande, long railroad pier, end. <sup>1</sup> 1909	26 43 11.80 82 15 22.27	363.2 615.5	203 10 07 282 24 41	23 10 53 102 26 53	Plow Jug Point	7199.5 8301.2	3.85730 3.91914
Kennedy 1859	26 44 10.559 82 04 10.169	325.0 281.0	34 55 08.0 69 51 24.2 123 52 54.4	214 53 58.5 249 48 43.1 303 50 46.4	Darling Bocillas El Gabo	7471.0 10550.4 9461.0	3.873378 4.023268 3.975938
Key Point 1859	26 47 45.009 82 03 46.793	1385.2 1292.5	125 07 40.2 164 43 22.4 179 58 59.5	305 05 07.2 344 42 34.6 359 58 59.5	Dana Punta Gorda Pelican	11447.6 11094.2 4601.7	4.058713 4.045098 3.662916
Alligator 1860	26 52 21.325 82 03 37.166	656.3 1025.9	3 54 58.1 78 44 24.0 121 37 17.0	183 54 53.7 258 41 46.4 301 34 43.7	Pelican Dana Shoal Point	3911.6 9817.3 10975.3	3.592351 3.991994 4.040416
Mangrove Point 1859	26 55 24.268 82 08 30.899	746.9 852.5	282 31 25.7 304 54 36.5 11 22 38.4	102 32 38.6 124 55 57.0 191 22 13.5	Eureka Punta Gorda Dana	4552.1 5996.5 7702.3	3.658212 3.777895 3.886622
Koonty 1860	26 57 01.619 82 06 57.353	49.8 1582.0	260 04 12.7 340 01 55.5 38 42 49.0	80 04 39.0 160 02 33.8 218 42 18.6	Grassy Point Punta Gorda Locust Point	1621.7 6839.9 2960.7	3.209969 3.835047 3.471397
Mangrove Point light 1909	26 53 58.389 82 07 14.755	1797.0 407.1	157 18 33.2 202 43 57.6 224 01 13.0 239 34 29.4	337 18 09.7 22 44 38.8 44 02 47.2 59 36 22.4	Locust Point 1909 Grassy Point 1909 Live Oak Point 1909 Punta Gorda Hotel cupola	3715.7 6495.4 8256.5 7982.8	3.570045 3.812605 3.916796 3.902157
Peace Creek light 1909	26 55 52.788 82 06 14.890	1624.7 410.8	88 17 01.5 199 10 26.3 239 24 35.5 264 18 50.2	268 16 10.8 19 10 40.4 59 25 42.6 84 20 16.1	Locust Point 1909 Grassy Point 1909 Live Oak Point 1909 Punta Gorda Hotel cupola	3086.3 2614.8 4746.9 5257.9	3.489443 3.417434 3.676413 3.720813
Punta Gorda astronomic station 1909	26 56 09.436 82 03 09.245	290.4 254.9	288 23 54.9 71 28 42.3 114 40 33.6 151 28 16.6 266 07 44.3	108 24 24.5 251 27 47.8 294 39 23.6 331 27 59.8 86 07 46.1	Cooper 1909 Cooper 1909 Grassy Point 1909 Live Oak Point 1909 Punta Gorda Hotel cupola	1900.2 3500.0 4690.1 2165.6 110.9	3.278810 3.544070 3.671180 3.335588 2.044965
Punta Gorda, Weather Bureau pole 1909	26 56 08.064 82 03 11.101	248.2 306.3	71 52 27.5 115 24 36.3 153 11 03.2 252 55 36.1	251 51 33.9 295 23 27.2 333 10 47.1 72 55 38.8	Cooper 1909 Grassy Point 1909 Live Oak Point 1909 Punta Gorda Hotel cupola	3438.2 4661.6 2179.3 169.3	3.536325 3.668532 3.338311 2.228707
Punta Gorda, Presbyterian church spire 1909	26 56 00.642 82 03 14.777	19.7 407.7	75 07 14.4 118 28 24.2 157 55 03.7 223 25 37.8	255 06 22.4 298 27 16.7 337 54 49.2 43 25 42.1	Cooper 1909 Grassy Point 1909 Live Oak Point 1909 Punta Gorda Hotel cupola	3275.9 4674.6 2345.4 383.0	3.515336 3.669749 3.370212 2.583177
Punta Gorda, cattle dock, end. <sup>1</sup> 1909	26 56 06.57 82 04 01.99	202.2 54.9	191 55 00 266 29 32	11 55 07 86 29 58	Live Oak Point 1909 Punta Gorda Hotel cupola	2034.9 1568.3	3.30854 3.19543
Punta Gorda, City dock end. <sup>1</sup> 1909	26 56 27.10 82 03 34.42	834.0 949.5	165 58 03 303 38 58	345 57 57 123 39 11	Live Oak Point 1909 Punta Gorda Hotel cupola	1400.9 967.5	3.14639 2.98566
Punta Gorda, Phosphate Works, long building, flagstaff. <sup>1</sup> 1909	26 55 52.26 82 03 36.72	1608.4 1013.2	173 30 42 238 18 46	353 30 37 58 19 00	Live Oak Point 1909 Punta Gorda Hotel cupola	2447.0 1020.7	3.38863 3.00891
Charlotte Harbor, cattle dock, end. <sup>1</sup> 1909	26 57 00.86 82 03 33.08	26.5 912.5	334 00 18 130 19 13	154 00 31 310 19 07	Punta Gorda Hotel cupola Live Oak Point 1909	1752.5 494.4	3.24367 2.69406

<sup>1</sup> No check on this position.

## CALOOSAHATCHEE RIVER TO CHARLOTTE HARBOR—Continued

Station	Latitude and longitude	Seconds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Supplementary points—Continued</i>							
Charlotte Harbor, church spire <sup>1</sup> 1909	° ' "		° ' "	° ' "	Punta Gorda Hotel cupola	<i>Meters</i> 3245.6	3.51130
	26 57 33.65 82 04 16.41	1035.6 452.6	322 46 21 63 17 58	142 46 53 243 16 14	Locust Point 1909	7111.8	3.85198
Hotel Cleveland, north gable <sup>1</sup> 1909	26 57 42.79 81 59 43.86	1316.9 1210.0	61 45 41 126 10 22	241 45 07 306 09 57	Trout Peace Creek	2355.9 1864.0	3.37216 3.27044

## GASPARILLA SOUND TO SARASOTA BAY

<i>Principal points</i>							
Gasparilla 1859	26 48 19.909 82 16 36.469	612.7 1007.2	292 28 21.4 352 17 33.6	112 30 02.0 172 17 55.3	Oso Boca Grande	6670.2 9928.8	3.824137 3.996898
Flat 1860	26 49 37.613 82 14 13.348	1157.6 368.5	335 54 27.6 58 49 56.4	155 55 03.7 238 48 51.8	Oso Gasparilla	5414.0 4619.6	3.733520 3.664606
Trepador 1860	26 50 14.185 82 16 25.080	436.6 692.4	287 11 10.3 5 06 38.8	107 12 09.8 185 06 33.7	Flat Gasparilla	3807.6 3531.1	3.580648 3.547988
Boca Nueva 2 1879	26 50 37.354 82 18 03.238	1149.6 89.4	284 44 05.9 330 27 59.1	104 44 50.2 150 28 38.3	Trepador Gasparilla	2802.4 4861.6	3.447530 3.686777
Hog 1879	26 51 42.727 82 18 06.757	1315.0 186.5	314 08 38.8 357 14 08.2	134 09 24.7 177 14 09.8	Trepador Boca Nueva 2	3912.2 2014.3	3.592426 3.304129
Bocilla 1879	26 52 16.080 82 19 34.543	494.9 953.5	292 57 08.0 320 19 00.8	112 57 47.7 140 19 42.1	Hog Boca Nueva 2	2631.7 3947.9	3.420233 3.596331
Lemon 1879	26 52 34.483 82 18 49.279	1061.3 1360.2	323 36 44.6 65 36 59.1	143 37 03.8 245 36 38.6	Hog Bocilla	1978.6 1371.8	3.296362 3.137286
Buttonwood 1879	26 53 27.013 82 19 09.452	831.4 260.8	340 59 42.8 17 36 04.4	160 59 51.9 197 35 53.1	Lemon Bocilla	1709.9 2290.3	3.232975 3.359897
Speedwell 1879	26 53 35.835 82 20 27.661	1102.8 763.4	277 09 53.8 329 08 54.7	97 10 29.2 149 09 18.8	Buttonwood Bocilla	2175.4 2859.1	3.337535 3.456231
Merchant 1879	26 54 46.924 82 20 06.920	1444.2 190.9	327 10 56.3 14 39 39.4	147 11 22.3 194 39 30.0	Buttonwood Speedwell	2926.4 2261.5	3.466328 3.354401
Stump Pass 1879	26 55 24.458 82 21 40.393	752.8 1114.4	294 07 20.9 329 01 04.6	114 08 03.2 149 01 37.5	Merchant Speedwell	2825.9 3899.2	3.451160 3.590980
Lopez 1879	26 56 41.497 82 21 13.929	1277.2 384.2	332 19 45.9 17 06 58.1	152 20 16.2 197 06 46.1	Merchant Stump Pass	3981.4 2480.9	3.600040 3.394608
Jacobs 1879	26 57 09.117 82 22 42.970	280.6 1185.3	289 05 07.7 331 48 29.1	109 05 48.0 151 48 57.4	Lopez Stump Pass	2599.0 3654.5	3.414814 3.562831
Porpoise 1882	26 58 08.237 82 22 26.428	253.5 728.9	323 09 38.4 14 04 39.1	143 10 11.3 194 04 31.6	Lopez Jacobs	3335.5 1875.9	3.523161 3.273205
Rocky Point 1882	26 58 41.678 82 23 47.567	1282.7 1311.8	294 41 45.3 327 58 30.4	114 42 22.1 147 58 59.7	Porpoise Jacobs	2463.0 3360.0	3.391463 3.526339
Horse and Chaise 1882	27 03 48.934 82 26 51.194	1506.1 1410.7	331 49 45.4	151 51 08.8	Rocky Point	10726.2	4.030444
Keg 1878	27 10 30.301 82 29 48.772	932.6 1342.6	338 23 21.7	158 24 42.6	Horse and Chaise	13286.2	4.123402
Northwest 1878	27 11 25.824 82 30 10.755	794.8 296.0	340 29 57.8	160 30 07.8	Keg	1812.9	3.258371
Huckleberry Camp 1878	27 10 51.655 82 29 23.532	1589.9 647.7	46 35 31.8 128 58 41.1	226 35 20.3 308 58 19.5	Keg Northwest	956.4 1672.0	2.980640 3.223240
Webb 1878	27 12 12.495 82 29 58.576	384.6 1612.1	338 48 28.6 13 08 09.9	158 48 44.6 193 08 04.3	Huckleberry Camp Northwest	2668.5 1475.0	3.426273 3.168801
Quick 1878	27 13 05.962 82 31 05.244	183.5 144.3	311 53 12.7 334 03 03.9	131 53 43.2 154 03 28.8	Webb Northwest	2464.6 3427.5	3.391743 3.534983
Clower 1878	27 13 14.815 82 30 09.039	456.0 248.7	351 27 45.7 80 00 42.9	171 27 50.5 260 00 17.2	Webb Quick	1939.6 1570.4	3.287714 3.196023
Hull 1878	27 15 07.236 82 31 04.970	222.7 136.7	336 01 12.3 0 06 56.7	156 01 37.9 180 06 56.6	Clower Quick	3786.9 3732.7	3.578287 3.572018
Little Sarasota 1878	27 14 44.310 82 32 10.760	1363.8 296.0	248 41 47.1 329 13 16.0	68 42 17.2 149 13 46.0	Hull Quick	1942.6 3523.1	3.288385 3.546927
Young 1878	27 16 44.036 82 32 23.503	1355.4 646.4	324 03 05.3 354 33 56.3	144 03 41.3 174 34 02.1	Hull Little Sarasota	3680.1 3701.6	3.565855 3.568393

<sup>1</sup> No check on this position.



## TRIANGULATION ALONG THE WEST COAST OF FLORIDA.

19

## GASPARTILLA SOUND TO SARASOTA BAY—Continued

Station	Latitude and longitude	Seconds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Principal points—Contd</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
Sarasota 1878	27 16 53.330 82 34 09.169	1641.4 252.2	275 36 54.1 320 38 03.1	95 37 42.5 140 38 57.3	Young Little Sarasota	2920.1 5135.9	3.465402 3.710617
Cedar Point 1878	27 20 04.333 82 33 01.843	133.4 50.7	350 17 38.0 17 28 58.1	170 17 55.6 197 28 27.2	Young Sarasota	6254.4 6163.4	3.796186 3.789823
New Pass 1878	27 20 19.707 82 35 05.352	606.6 147.1	277 55 36.8 346 19 40.8	97 56 33.5 166 20 06.6	Cedar Point Sarasota	3427.9 6537.2	3.535030 3.815392
Stephens 1878	27 22 25.788 82 33 47.691	793.7 1310.5	343 51 19.7 28 48 59.0	163 51 40.8 208 48 23.3	Cedar Point New Pass	4532.5 4428.9	3.656342 3.646296
Mangrove 1878	27 23 37.658 82 37 38.958	1159.1 1070.2	289 10 44.2 310 44 56.8 325 16 27.7	109 12 30.6 130 47 04.3 145 17 38.3	Stephens Cedar Point New Pass	6728.6 10055.3 7412.2	3.827922 4.002397 3.869948
Bowlegs 1878	27 24 47.571 82 34 54.076	1464.2 1485.4	337 18 49.5 340 30 38.6 2 09 11.3 64 36 00.2	157 19 20.0 160 31 30.2 182 09 06.1 244 34 44.3	Stephens Cedar Point New Pass Mangrove	4729.8 9247.3 8250.4 5014.8	3.674841 3.966014 3.916477 3.700257
Shell 1878	27 25 29.155 82 37 17.739	897.4 487.3	287 57 40.3 9 38 28.8	107 58 46.4 189 38 19.0	Bowlegs Mangrove	4148.6 3481.0	3.617898 3.541699
Tom 1878	27 25 07.980 82 39 20.601	245.6 565.9	259 03 40.5 274 53 12.9 314 52 03.3	79 04 37.1 94 55 15.6 134 52 50.1	Shell Bowlegs Mangrove	3437.1 7348.1 3940.2	3.536193 3.866174 3.595523
Key 1878	27 26 19.636 82 38 39.155	604.4 1075.3	294 36 39.7 304 47 19.6 341 38 50.3 27 18 09.7	114 38 23.3 124 47 57.1 161 39 18.0 207 17 50.6	Bowlegs Shell Mangrove Tom	6800.6 2722.9 5252.6 2482.0	3.832549 3.435038 3.720378 3.394801
Longboat 1878	27 26 39.218 82 41 32.031	1207.1 879.6	277 13 26.8 307 52 23.8	97 14 46.5 127 53 24.4	Key Tom	4785.8 4573.5	3.679954 3.660248
Cut 1878	27 27 57.047 82 40 47.141	1755.9 1294.3	310 27 34.3 335 26 52.7 27 13 54.3	130 28 33.3 155 27 32.6 207 13 33.6	Key Tom Longboat	4619.7 5720.8 2694.1	3.664613 3.757459 3.430410
Anna Maria Key southeast base 1873	27 28 33.317 82 42 11.131	1025.5 305.6	295 49 38.6 342 59 56.3	115 50 17.3 163 00 14.3	Cut Longboat	2562.0 3672.4	3.408580 3.564945
Mound 1878	27 28 39.348 82 41 19.778	1211.1 543.0	325 27 43.3 5 12 00.0 82 30 07.3	145 27 58.4 185 11 54.4 262 29 43.6	Cut Longboat Anna Maria Key southeast base	1580.6 3712.8 1422.0	3.198812 3.569705 3.152904
Coral 1860	26 48 55.363 82 15 08.440	1703.9 233.1	65 50 01.5 122 47 56.2 229 28 33.5 314 17 55.5	245 49 21.8 302 46 38.0 49 28 58.4 134 18 56.5	Gasparilla Boca Nueva Flat Oso	2664.7 5693.7 2001.4 5214.4	3.425655 3.755394 3.301328 3.717207
Boca Nueva 1860	26 50 35.546 82 18 01.787	1094.0 49.3	283 49 33.7 330 33 19.5	103 50 17.3 150 33 58.0	Trepador Gasparilla	2749.8 4793.4	3.439307 3.680644
Idano 1860	26 51 00.773 82 17 34.064	23.8 940.4	306 58 07.8 342 11 16.1 44 35 35.5	126 58 38.9 162 11 42.1 224 35 23.0	Trepador Gasparilla Boca Nueva	2384.0 5200.0 1090.2	3.377301 3.716006 3.037522
Pelayo 1860	26 45 55.385 82 14 55.598	1704.6 1536.1	312 46 39.3 341 01 07.6 12 52 20.7	132 48 39.2 161 02 08.8 192 52 00.8	Jug Point Useppa Inn Gasparilla Island rear range L. II.	10040.6 11569.7 5493.7	4.001760 4.063322 3.739863
Plow 1909	26 46 46.853 82 13 39.741	1442.0 1097.8	176 20 11.6 327 53 44.3 352 25 31.8 25 34 20.0	356 20 05.8 147 55 10.1 172 25 58.8 205 33 25.9	Coral Jug Point Useppa Inn Gasparilla Island rear range L. II.	5550.4 9921.3 12635.3 7692.8	3.744326 3.996570 4.101586 3.886085
Gasparilla 1909 1909	26 48 16.040 82 16 43.134	493.6 1191.3	52 55 17.3 148 13 48.0 245 09 42.6 325 32 05.3 349 45 57.9	232 54 43.1 328 13 08.0 65 10 25.3 145 32 53.8 169 46 26.5	Pelayo Coral Coral Pelayo Gasparilla Island rear range L. H.	2627.0 4652.4 2881.7 5250.1 9841.0	3.419453 3.667677 3.459643 3.720167 3.993040
Placida 1909	26 49 48.641 82 15 49.712	1497.0 1372.7	325 11 44.3 348 14 06.9 27 22 18.3	145 12 02.9 168 14 31.3 207 21 54.2	Coral Pelayo Gasparilla 1909	1996.9 7332.8 3209.1	3.300364 3.865269 3.506389
Section Post (concrete) quarter corner between Secs. 22 and 27, T. 42 S., R. 20 E.	26 49 06.853 82 17 05.325	210.9 147.0	238 21 51.6 276 15 43.2 338 35 56.7	58 22 25.7 96 15 35.9 158 36 06.7	Placida Coral Gasparilla 1909	2452.3 3247.2 1679.7	3.389569 3.511510 3.225219
Mound 2 1908	27 28 39.399 82 41 19.749	1212.7 542.2	135 09 13.7 184 51 26.9	315 08 31.2 4 51 32.2	Anna Maria Key northwest base Perico 2	3585.1 3685.3	3.5545045 3.5664784

## GASPARILLA SOUND TO SARASOTA BAY—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Principal points—Contd.</i>							
Anna Maria Key southeast base 2 1908	27 28 33.321	1025.6	157 43 27.0	337 43 08.2	Anna Maria Key northwest base	<i>Meters</i> 2948.8	3.4696470
	82 42 11.135	305.7	204 03 03.5	24 03 32.6	Perico 2	4226.2	3.6259524
			262 26 33.3	82 26 57.0	Mound 2	1423.1	3.1532395
Cortez 1908	27 27 46.226	1422.8	127 24 30.2	307 23 58.4	Anna Maria Key southeast base 2	2386.4	3.3777412
	82 41 02.091	57.4	163 30 01.4	343 29 53.3	Mound 2	1707.0	3.2322212
Longboat 2 1908	27 26 44.361	1365.4	162 02 23.1	342 02 04.9	Anna Maria Key southeast base 2	3525.6	3.5472331
	82 41 31.537	866.0	185 13 19.8	5 13 25.3	Mound 2	3555.6	3.5509130
			203 00 21.2	23 00 34.8	Cortez	2068.8	3.3157084
Bolees Creek 1908	27 24 38.899	1197.3	96 40 44.9	276 38 36.4	Tom Key	7717.4	3.8874701
	82 34 41.558	1141.6	115 25 43.1	295 23 53.7		7225.3	3.8588542
Long Bar Point 1908	27 25 31.592	972.4	78 01 25.1	258 00 27.7	Tom Key	3499.4	3.5439965
	82 37 15.981	439.0	122 55 21.9	302 54 43.6	Bolees Creek	2721.3	3.4347818
			290 54 52.4	110 56 03.4		4541.3	3.6571770
Whale Key 1908	27 23 35.842	1103.2	248 16 39.7	68 18 01.4	Bolees Creek	5246.6	3.7198776
	82 37 38.986	1071.1	135 27 30.8	315 26 44.0	Tom Key	3979.5	3.5998306
			161 51 09.1	341 50 41.4	Long Bar Point	5305.6	3.7247320
Cedar Point 2 1908	27 20 02.542	78.2	130 41 40.1	310 39 32.3	Whale Key	10072.5	4.0031386
	82 33 01.023	28.1	162 00 46.9	342 00 00.7	Bolees Creek	8943.4	3.9515040
New Pass 2 1908	27 20 19.531	601.1	145 04 02.5	325 02 51.9	Whale Key	7371.1	3.8675305
	82 35 05.362	147.4	184 40 58.1	4 41 09.0	Bolees Creek	8009.9	3.9036254
			278 41 25.1	98 42 22.2	Cedar Point 2	3457.7	3.5387884
Sarasota 2 1908	27 16 52.785	1624.7	166 26 43.0	346 26 17.4	New Pass 2	6545.8	3.8156640
	82 34 09.550	262.6	197 52 33.8	17 53 05.2	Cedar Point 2	6136.9	3.7879495
			207 41 04.0	27 41 25.0	Lone Pine	2711.9	3.4332782
Young 2 1908	27 16 44.011	1354.6	95 17 59.0	275 17 10.4	Sarasota 2	2927.5	3.4664941
	82 32 23.562	648.0	148 13 52.1	328 13 24.6	Lone Pine	3142.4	3.4972559
			170 26 02.1	350 25 44.9	Cedar Point 2	6196.8	3.7921651
<i>Supplementary points</i>							
Boca Grande, City lookout <sup>1</sup> 1909	26 45 02.26	69.6	301 06 54	121 09 14.0	Jug Point	10030.2	4.00131
	82 15 39.64	1095.4	331 50 23	151 51 44.0	Useppa Inn	10554.3	4.02343
Gasparilla Island Concrete Works water tank 1909	26 47 40.629	1250.4	150 15 35.0	330 15 24.8	Gasparilla 1909	1255.2	3.098703
	82 16 20.590	568.7	192 12 39.2	12 12 53.1	Placida	4031.0	3.605413
			220 54 01.8	40 54 34.3	Coral	3043.2	3.483327
Charlotte Harbor & North- ern Ry.: West drawbridge, east end 1909	26 48 56.191	1729.4	270 47 18.2	90 47 48.3	Coral	1845.5	3.266122
	82 16 15.261	421.4	31 55 19.8	211 55 07.2	Gasparilla 1909	1455.9	3.163123
			203 36 23.8	23 36 35.3	Placida	1761.7	3.245922
East drawbridge, east end 1909	26 49 32.675	1005.6	217 42 35.0	37 42 41.2	Placida	621.1	2.793168
	82 16 03.471	95.8	307 04 25.3	127 04 50.1	Coral	1904.8	3.279848
			24 54 47.2	204 54 20.3	Gasparilla 1909	2600.5	3.415058
Long trestle, east end 1909	26 49 51.867	1596.3	296 13 49.0	116 13 52.3	Placida	224.6	2.351487
	82 15 57.010	1574.2	322 21 19.6	142 21 41.5	Coral	2196.2	3.341667
			23 21 42.8	203 21 22.0	Gasparilla 1909	3212.5	3.506847
Long trestle, west end 1909	26 48 11.396	350.7	111 18 29.1	291 18 23.1	Gasparilla 1909	393.4	2.594816
	82 16 29.864	824.8	200 19 35.8	20 19 53.9	Placida	3191.7	3.504020
			238 57 31.0	58 58 07.7	Coral	2624.5	3.419044
Section Post (concrete) M. C. Sec. 27, T. 42 S., R. 20 E. 1909	26 48 26.298	809.4	30 49 45.7	210 49 42.5	Gasparilla 1909	367.6	2.565414
	82 16 36.312	1002.9	206 55 05.6	26 55 26.6	Placida	2842.3	3.453665
			249 45 39.4	69 46 19.0	Coral	2586.4	3.412097
Section Post (concrete) M. C. Secs. 22 and 27, T. 42 S., R. 20 E. <sup>1</sup> 1909	26 49 06.86	211.1	89 57 33	269 57 30	Section Post (con- crete) quarter corner between Secs. 22 and 27, T. 42 S., R. 20 E.	196.8	2.29411
	82 16 58.20	1607.2			Placida	2286.9	3.35925
			235 46 51	55 47 22			
Lone Pine 1908	27 18 10.807	332.6	144 48 48.0	324 48 01.3	New Pass 2	4848.2	3.6855793
	82 33 23.728	652.5	190 17 12.0	10 17 22.4	Cedar Point 2	3495.3	3.5434832
Fishing Point pavilion, north gable 1908	27 18 15.340	472.2	191 52 03.2	11 52 14.7	Cedar Point 2	3371.6	3.527840
	82 33 26.246	721.7	328 28 38.9	148 29 07.6	Young 2	3297.5	3.518182
			25 06 48.4	205 06 28.5	Sarasota 2	2806.2	3.448113
Sarasota Baptist Church spire <sup>1</sup> 1908	27 20 15.76	485.1	23 06 48	203 06 04	Sarasota 2	6792.1	3.832003
	82 32 32.60	896.2	62 30 06	242 29 53	Cedar Point 2	880.7	2.944836
Bell Haven Hotel cupola 1908	27 20 04.866	149.8	23 03 24.2	203 02 42.2	Sarasota 2	6425.0	3.807874
	82 32 38.055	1046.1	83 32 14.1	263 32 03.6	Cedar Point 2	635.4	2.803086
			96 22 12.0	276 21 04.4	New Pass 2	4074.3	3.610067

<sup>1</sup> No check on this position.



## TRIANGULATION ALONG THE WEST COAST OF FLORIDA.

21

## GASPARILLA SOUND TO SARASOTA BAY—Continued

Station	Latitude and longitude	Seconds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Supplementary points—Con</i>							
Sarasota Methodist Church spire 1908	° ' "		° ' "	° ' "		<i>Meters</i>	
	27 20 09.801	301.7	23 39 44.4	203 39 00.1	Sarasota 2	6620.2	3.820872
	82 32 32.940	905.5	73 51 34.4	253 51 21.5	Cedar Point 2	803.6	2.905065
Warehouse on piles, west gable 1908	27 22 20.068	617.7	94 05 53.2	274 04 43.2	New Pass 2	4200.5	3.623305
	82 33 52.209	1434.7	341 36 44.1	161 37 07.6	Cedar Point 2	4460.6	3.649393
			28 27 32.0	208 26 58.4	New Pass 2	4219.8	3.625290
South end of cut 1908	27 25 19.240	592.2	162 23 55.6	342 23 32.9	Bolees Creek	4483.0	3.651572
	82 38 15.571	427.7	79 01 43.4	259 01 13.4	Tom	1819.7	3.259992
			160 47 25.4	340 47 14.5	Key	1968.7	3.294175
North end of cut 1908	27 26 03.929	120.9	256 55 09.6	76 55 37.0	Long Bar Point	1680.4	3.225400
	82 38 40.331	1107.7	32 43 12.8	212 42 54.2	Tom	2046.7	3.311044
			183 48 55.6	3 48 56.1	Key	484.6	2.685405
Robert's house chimney 1908	27 26 34.432	1059.8	293 14 37.4	113 15 16.2	Long Bar Point	2521.5	3.401656
	82 41 19.257	528.9	132 10 56.0	312 10 50.3	Longboat 2	455.1	2.658112
			192 02 25.6	12 02 33.5	Cortez	2259.5	3.354012
Fulford's, Wm., house, south chimney <sup>1</sup> 1908	27 27 58.97	1815.1	275 54 08.2	95 55 22.0	Key	4420.3	3.645456
	82 41 06.26	171.9	343 45 01	163 45 03	Cortez	408.7	2.611442
			16 49 12	196 49 01	Longboat 2	2399.2	3.380069
Bratton's, Mrs., house, south chimney <sup>1</sup> 1908	27 27 58.17	1790.4	321 43 13	141 43 18	Cortez	468.4	2.670572
	82 41 12.66	347.6	12 51 19	192 51 11	Longboat 2	2330.2	3.367401
Brunsman's, A. G., house, chimney 1908	27 28 24.493	753.9	158 25 26.9	338 25 06.9	Anna Maria Key northwest base	3226.6	3.508739
	82 42 08.632	237.0	165 48 16.7	345 48 15.5	Anna Maria Key southeast base 2	280.3	2.447608
			251 07 20.8	71 07 43.3	Mound 2	1418.3	3.151770
			341 42 35.1	161 42 52.1	Longboat 2	3246.0	3.511346

## TAMPA BAY.

<i>Principal points</i>							
Anna Maria Key north-west base 1873	27 30 01.973	60.7	315 10 06.8	135 10 49.3	Mound	3585.7	3.554570
	82 42 51.859	1423.4	337 43 03.4	157 43 22.2	Anna Maria Key southeast base	2948.96	3.469669
			340 38 38.7	160 39 15.6	Longboat	6614.4	3.820489
Nell 1878	27 29 42.030	1293.7	1 43 55.4	181 43 54.4	Mound	1930.2	3.285604
	82 41 17.653	484.6	34 46 09.5	214 45 44.8	Anna Maria Key southeast base	2574.6	3.410702
			103 21 35.5	283 20 52.0	Anna Maria Key northwest base	2657.7	3.424507
Perico 1873	27 30 35.254	1085.1	24 01 07.5	204 00 39.4	Anna Maria Key southeast base	4108.9	3.613721
	82 41 10.213	280.3	69 50 39.0	249 49 52.1	Anna Maria Key northwest base	2972.0	3.473049
Palm 1873	27 32 13.227	407.1	298 08 03.8	118 09 38.7	Perico	6392.4	3.805665
	82 44 35.603	976.9	324 49 10.5	144 49 58.4	Anna Maria Key northwest base	4942.4	3.693939
			329 37 41.0	149 38 47.8	Anna Maria Key southeast base	7844.7	3.894578
Terraceia 1873	27 33 31.971	984.0	47 09 21.3	227 07 42.5	Perico	7996.9	3.902921
	82 37 36.579	1003.5	78 07 18.8	258 04 05.0	Palm	11749.2	4.070009
Egmont Key L. H. 1873	27 36 01.980	60.9	289 12 18.1	109 16 01.4	Terraceia	14014.6	4.146581
	82 45 39.003	1069.6	323 43 53.3	143 45 57.6	Perico	12470.5	4.095884
			346 07 17.5	166 07 46.8	Palm	7252.6	3.860495
Pinelos 1873	27 42 15.719	483.8	337 30 27.7	157 31 44.9	Anna Maria Key northwest base	11992.4	4.0789052
	82 38 29.340	803.8	354 52 09.8	174 52 34.2	Terraceia	16185.9	4.209136
			45 42 01.7	225 38 42.3	Egmont Key L. H.	16463.3	4.216518
Roach 1873	27 39 55.982	1723.1	35 21 20.8	215 18 59.2	Terraceia	14489.2	4.161045
	82 32 30.962	848.6	71 36 46.5	251 30 41.1	Egmont Key L. H.	22773.4	4.357427
			113 40 32.8	293 37 46.4	Pinelos	10721.0	4.030236
Terraceia 2 1908	27 33 35.853	1103.5	53 00 15.4	232 57 48.3	Anna Maria Key northwest base	10934.8	4.0388117
	82 37 33.681	924.0	108 42 01.8	288 38 17.1	Egmont Key L. H.	14050.9	4.1477056
Palm 2 1908	27 32 12.094	372.2	164 15 11.4	344 14 37.7	Egmont Key L. H.	7352.0	3.8664040
	82 44 26.246	720.2	257 08 33.2	77 11 44.0	Terraceia 2	11609.2	4.0648014
			327 06 02.8	147 06 46.5	Anna Maria Key northwest base	4769.8	3.6784970
Perico 2 1908	27 30 38.702	1191.2	68 18 08.6	248 17 20.8	Anna Maria Key northwest base	3056.9	3.4852866
	82 41 08.379	230.0	117 54 33.0	297 53 01.6	Palm 2	6143.9	3.7884463
			143 17 21.6	323 15 16.4	Egmont Key L. H.	12415.1	4.0939500
			227 11 59.9	47 13 39.2	Terraceia 2	8027.4	3.9045727

<sup>1</sup> No check on this position.

## TAMPA BAY—Continued

Station	Latitude and longitude	Seconds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Principal points—Contd</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
Mullet Key Shoal light 1908	27 37 43.932 82 40 46.887	1352.2 1285.5	325 13 49.2 30 30 51.3 68 37 27.3	145 15 18.7 210 29 09.8 248 35 11.9	Terraceia 2 Palm 2 Egmont Key L. H.	9294.2 11854.3 8602.6	3.9682133 4.0738768 3.9346290
Pinelos 2 1908	27 42 15.797 82 38 30.260	486.2 829.1	354 27 37.6 24 06 57.7 45 37 59.1	174 28 03.8 204 05 54.2 225 36 40.1	Terraceia 2 Mullet Key Shoal light Egmont Key L. H.	16079.0 9167.7 16447.0	4.2062599 3.9622614 4.2160870
Cockroach (U. S. E.) 1908	27 40 31.551 82 32 07.566	971.1 207.3	34 58 05.3 69 35 46.8 70 06 38.0	214 55 34.1 249 29 30.3 250 02 36.9	Terraceia 2 Egmont Key L. H. Mullet Key Shoal light	15610.1 23741.9 15141.0	4.1934053 4.3725439 4.1801545
			107 02 19.0	286 59 21.2	Pinelos 2	10966.2	4.0400554
Ant 2 1908	27 43 33.293 82 37 43.110	1024.8 1180.9	301 17 55.0 28 26 17.7	121 20 31.0 208 25 55.8	Cockroach (U. S. E.) Pinelos 2	10761.6 2712.6	4.0318772 3.4333911
Indian Hill 2 1908	27 41 05.026 82 31 19.542	154.7 535.5	51 56 38.6 100 29 09.0 113 29 57.0	231 56 16.3 280 25 49.0 293 26 58.8	Cockroach (U. S. E.) Pinelos 2 Ant 2	1671.4 12001.0 11456.9	3.2230816 4.0792174 4.0506672
Mangrove (U. S. E.) 1908	27 44 39.712 82 28 48.389	1222.4 1325.3	32 04 54.7 35 33 11.8 74 30 20.4 82 05 16.5	212 03 44.4 215 31 39.3 254 25 49.8 262 01 07.7	Indian Hill 2 Cockroach (U. S. E.) Pinelos 2 Ant 2	7798.4 9387.4 16543.0 14787.9	3.8920033 3.9725439 4.2186145 4.1699064
Cedar Point (U. S. E.) 1908	27 50 08.297 82 35 24.177	255.4 661.6	313 00 12.1 338 09 11.3 343 06 55.8 17 22 51.6	133 03 16.6 158 11 05.1 163 08 27.3 197 21 46.9	Mangrove (U. S. E.) Indian Hill 2 Cockroach (U. S. E.) Ant 2	14822.2 18014.2 18551.2 12739.7	4.1709112 4.2556158 4.2683726 4.1051597
Gadsden 2 1908	27 49 17.482 82 28 26.669	538.1 729.9	3 58 47.3 17 21 20.3 55 13 18.7	183 58 37.2 197 19 59.8 235 08 59.4	Mangrove (U. S. E.) Indian Hill 2 Ant 2	8570.7 15880.3 18557.0	3.9330160 4.2008588 4.2685069
Gadsden Point light 1908	27 48 57.372 82 27 15.815	1766.0 432.8	17 43 42.4 59 53 35.7 99 18 31.7 107 42 29.4	197 42 59.2 239 48 43.5 279 14 43.8 287 41 56.3	Mangrove (U. S. E.) Ant 2 Cedar Point (U. S. E.) Gadsden 2	8326.2 19862.5 13542.2 2035.6	3.9204452 4.2980344 4.1316886 3.3086920
Alafia 2 1908	27 50 03.619 82 23 30.363	111.4 830.9	41 08 57.2 71 43 33.6 80 05 07.4	221 06 28.9 251 41 48.4 260 02 49.1	Mangrove (U. S. E.) Gadsden Point light Gadsden 2	13236.5 6498.2 8232.3	4.1217733 3.8127950 3.9155206
Ball 1908	27 54 19.176 82 24 54.610	590.3 1493.5	343 39 54.7 21 18 53.0 32 00 26.4	163 40 34.1 201 17 47.0 211 58 47.4	Alafia 2 Gadsden Point light Gadsden 2	8197.0 10632.2 10949.7	3.9136571 4.0266232 4.0394029
Catfish Point (U. S. E.) 1908	27 50 42.201 82 28 13.623	1299.0 372.8	219 10 14.8 278 41 33.2 333 52 44.3	39 11 47.8 98 43 45.5 153 53 11.3	Ball Alafia 2 Gadsden Point light	8616.4 7841.5 3593.7	3.9353269 3.8943966 3.5555402
Ballast Point 2 1908	27 53 20.634 82 28 50.386	635.1 1378.2	254 22 16.2 304 41 16.6 342 17 07.1 348 20 42.8	74 24 06.5 124 43 46.2 162 17 51.4 168 21 00.0	Ball Alafia 2 Gadsden Point light Catfish Point (U. S. E.)	6695.3 10650.4 8506.6 4979.4	3.8257714 4.0273640 3.9297563 3.6971765
Picnic Island 1908	27 51 02.893 82 32 49.785	89.0 1362.1	330 43 27.9 30 08 36.6 68 19 02.8	150 45 20.6 210 06 19.9 248 17 50.7	Mangrove (U. S. E.) Ant 2 Cedar Point (U. S. E.)	13519.6 16000.2 4546.6	4.130965 4.204125 3.657682
Dave 1908	27 53 46.439 82 31 50.822	1429.4 1390.0	17 46 08.5 41 00 45.0	197 45 40.9 220 59 05.3	Picnic Island Cedar Point (U. S. E.)	5286.3 8896.9	3.723149 3.949239
Pete 1908	27 52 51.662 82 37 01.585	1590.2 43.4	258 45 34.4 295 54 18.8 332 04 17.8	78 47 59.7 115 56 16.4 152 05 03.3	Dave Picnic Island Cedar Point (U. S. E.)	8665.4 7659.1 5691.1	3.937789 3.884175 3.755198
Gun 1908	27 54 51.146 82 31 50.213	1574.3 1373.0	33 55 29.6 66 39 40.0	213 53 49.6 246 37 14.3	Cedar Point (U. S. E.) Pete	10490.9 9276.0	4.020814 3.967362
Dog 1908	27 54 22.308 82 38 26.354	686.7 720.7	265 17 23.8 275 48 08.5 320 16 15.3	85 20 29.3 95 51 13.6 140 16 55.0	Gun Dave Pete	10869.1 10873.3 3627.8	4.036195 4.036360 3.559638
Rocky Point 1906	27 57 47.362 82 34 19.216	1457.9 525.2	323 05 03.2 331 18 27.2 7 10 12.9 26 00 43.2 46 57 56.7	143 06 13.0 151 19 36.6 187 09 42.4 205 59 27.2 226 56 00.8	Gun Dave Cedar Point (U. S. E.) Pete Dog	6783.5 8453.2 14242.0 10127.1 9246.2	3.831455 3.927023 4.153570 4.005487 3.965964
<i>Supplementary points</i>							
Johnson's house north ga- ble, Perico Island <sup>1</sup> 1908	27 29 49.53 82 41 14.91	1524.5 409.3	33 21 03 08 12 02	213 20 37 278 11 17	Anna Maria Key southeast base 2 Anna Maria Key northwest base	2808 2689	3.44837 3.42952
Stake, south end of 40-foot cut 1908	27 30 46.470 82 41 30.678	1430.3 842.0	58 25 37.7 291 20 19.1 355 36 48.4	238 25 00.2 111 20 29.4 175 36 53.3	Anna Maria Key northwest base Perico 2 Mound 2	2615.4 657.1 3922.7	3.417545 2.817596 3.593584

<sup>1</sup> No check on this position.



## TAMPA BAY—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Loga-rithm
<i>Supplementary points—Continued</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
Manatee 2	27 31 54.593	1680.4	93 20 20.2	273 17 43.6	Palm 2	9309.4	3.968924
1908	82 38 47.547	1304.7	124 01 52.7	303 58 42.2	Egmont Key L. H.	13615.4	4.134030
			163 04 36.2	343 03 40.9	Mullet Key Shoal light	11239.9	4.050762
Snead Point Shoal light	27 32 08.838	272.0	32 56 30.1	212 55 59.6	Perico 2	3305.7	3.519267
1908	82 40 02.882	79.1	49 54 43.1	229 53 24.8	Anna Maria Key northwest base	6062.5	3.782649
			90 48 41.1	270 46 39.1	Palm 2	7227.2	3.858972
			127 54 54.3	307 52 18.6	Egmont Key L. H.	11683.7	4.067582
			236 47 40.8	56 48 49.6	Terraceia 2	4891.9	3.689476
			281 58 15.1	101 58 49.7	Manatee 2	2113.2	3.324932
Manatee River Cut light	27 31 46.913	1444.0	62 22 42.3	242 20 58.4	Anna Maria Key northwest base	6963.4	3.842824
1908	82 39 07.080	194.3			Palm 2	8792.2	3.944098
			95 04 40.9	275 02 13.3	Egmont Key L. H.	13312.7	4.124267
			126 09 48.1	306 06 46.8	Terraceia 2	4220.3	3.625342
			217 22 55.2	37 23 38.3	Manatee 2	585.8	2.767747
			246 11 52.3	66 12 01.4			
Terraceia Point No. 1 light	27 32 44.315	1364.0	54 11 05.5	234 09 09.1	Anna Maria Key northwest base	8535.8	3.931245
1908	82 38 39.683	1088.8			Palm 2	9560.6	3.980436
			84 04 04.6	264 01 24.4	Egmont Key L. H.	13012.0	4.114345
			117 54 14.8	297 51 00.7	Terraceia 2	2407.4	3.381547
			228 46 34.3	48 47 04.9			
Palmetto Schoolhouse dome	27 31 03.302	101.6	97 26 10.5	277 21 35.9	Palm 2	16444.1	4.216011
1908	82 34 31.994	878.0	116 43 05.2	296 37 56.6	Egmont Key L. H.	20478.1	4.311289
			133 17 50.4	313 16 26.4	Terraceia 2	6848.4	3.835589
Palmetto Church, tall thin spire	27 30 52.130	1604.6	98 41 44.7	278 37 12.5	Palm 2	16350.1	4.213521
1908	82 34 37.228	1021.7	117 45 21.8	297 40 15.6	Egmont Key L. H.	20507.8	4.311918
			141 38 39.2	321 34 24.2	Tomlinson	24307.2	4.385735
			136 09 26.6	316 08 05.0	Terraceia 2	6988.4	3.844377
Fogartyville Episcopal Church spire	27 29 49.390	1520.2	123 24 18.2	303 22 39.8	Manatee 2	7002.3	3.845238
1908	82 35 14.523	398.6	123 50 12.0	303 45 23.2	Egmont Key L. H.	20617.3	4.314232
			146 10 56.2	326 06 58.5	Tomlinson	25205.6	4.402529
Braidentown electric power house stack	27 29 50.396	1551.2	117 36 15.4	297 34 12.2	Manatee 2	8254.7	3.916702
1908	82 34 20.968	575.6	121 37 39.2	301 32 25.6	Egmont Key L. H.	21837.4	4.339201
			142 42 11.3	322 40 42.2	Terraceia 2	8724.9	3.940758
			163 25 25.7	343 23 30.2	Pinelos 2	23940.4	4.379132
Braidentown standpipe	27 29 31.339	964.6	121 02 38.1	301 00 34.7	Manatee 2	8554.5	3.932194
1908	82 34 20.451	561.4	122 53 58.9	302 48 45.1	Egmont Key L. H.	22162.6	4.345620
			144 50 43.6	324 49 14.3	Terraceia 2	9206.5	3.964094
			163 46 59.9	343 45 04.2	Pinelos 2	24507.2	4.389293
Southwest Channel light	27 34 48.271	1485.8	146 31 24.9	326 30 59.5	Egmont Key L. H.	2720.1	3.434582
1908	82 44 44.291	1214.8	280 39 31.8	100 42 51.0	Terraceia 2	12020.5	4.079924
			298 37 15.5	118 40 00.5	Manatee 2	11151.9	4.047348
			322 20 50.7	142 22 30.4	Perico 2	9700.7	3.986802
			354 07 09.1	174 07 17.4	Palm 2	4832.6	3.684177
Battery Page	27 34 50.066	1541.0	189 19 53.9	9 20 00.0	Egmont Key L. H.	2243.2	3.350870
1908	82 45 52.267	1433.5	279 26 59.8	99 30 50.6	Terraceia 2	13866.1	4.141954
			314 47 22.7	134 49 34.0	Perico 2	10978.6	4.040547
			334 06 20.6	154 07 00.4	Palm 2	5404.8	3.732778
Egmont Key, pilots' look-out	27 35 10.280	316.4	339 20 31	159 21 06	Palm 2	5861.2	3.767990
1908	82 45 41.605	1141.1	182 34 04	2 34 05	Egmont Key L. H.	1592.9	3.202186
			282 13 14	102 17 01	Terraceia 2	13695.8	4.136588
			318 05 50	138 07 57	Perico 2	11228.1	4.050307
Fort Dade, top of water tank	27 35 41.545	1278.7	196 40 45.1	16 40 48.3	Egmont Key L. H.	656.6	2.817315
1908	82 45 45.875	1258.1	285 57 32.1	106 01 20.0	Terraceia 2	14043.8	4.147486
			320 44 33.0	140 46 41.3	Perico 2	12035.4	4.080460
			335 26 17.7	155 27 38.2	Anna Maria Key, northwest base	11490.8	4.060351
			341 16 37.7	161 17 14.6	Palm 2	6806.9	3.832950
Fort Dade, power house black stack	27 35 41.442	1275.6	194 47 41.2	14 47 44.0	Egmont Key L. H.	653.9	2.815478
1908	82 45 45.091	1236.6	285 58 14.3	106 02 01.8	Terraceia 2	14022.3	4.146820
			320 48 44.3	140 50 52.2	Perico 2	12019.3	4.079880
			341 26 24.8	161 27 01.3	Palm 2	6797.0	3.832318
Fort Dade flagstaff	27 35 41.249	1269.6	174 27 36.7	354 27 35.6	Egmont Key L. H.	641.1	2.806932
1908	82 45 36.746	1007.8	286 12 34.2	106 16 17.8	Terraceia 2	13890.3	4.139903
			301 50 03.1	121 53 12.5	Manatee 2	13216.6	4.121121
			343 16 29.5	163 17 02.1	Palm 2	6722.0	3.827498
Army pier, tower coal shed <sup>1</sup>	27 35 55.02	1693.5	144 20 06	324 20 03	Egmont Key L. H.	264	2.42081
1908	82 45 33.40	916.0	288 00 08	108 03 50	Terraceia 2	13838	4.14106
Egmont Key landing, tower on pavilion	27 35 55.045	1694.3	303 35 11.8	123 38 19.5	Manatee 2	13369.6	4.126120
1908	82 45 33.430	916.8	323 13 50.2	143 15 52.8	Perico 2	12152.6	4.084670
			337 47 56.9	157 49 11.6	Anna Maria Key, northwest base	11736.9	4.069552
			344 57 47.8	164 58 18.9	Palm 2	7105.6	3.851600

<sup>1</sup> No check on this position.

## TAMPA BAY—Continued

Station	Latitude and longitude	Sec- onds in meters	Azimuth	Back azimuth	To station	Distance	Loga- rithm
<i>Supplementary points— Continued</i>	<i>" " "</i>		<i>" " "</i>	<i>" " "</i>		<i>Meters</i>	
North Channel light 1908	27 36 42.550 82 44 17.284	1309.7 474.0	297 24 32.5 335 09 22.6 349 13 56.5	117 27 39.4 155 10 50.0 169 14 36.0	Terraceia 2 Perico 2 Anna Maria Key, northwest base Egmont Key L. H.	12472.3 12340.1 12550.5 2565.3	4.095948 4.091320 4.098660 3.409146
Fort de Sota flagstaff 1908	27 36 41.390 82 44 04.349	1274.0 119.2	4 08 45.6 64 57 25.9 298 01 54.0 336 36 13.4	184 08 35.5 244 56 42.0 118 04 54.9 156 37 34.8	Palm 2 Egmont Key L. H. Terraceia 2 Perico 2	8310.7 2965.1 12141.7 12162.6	3.919636 3.457136 4.084281 4.085025
Fort de Sota, water tank 1908	27 36 50.618 82 44 06.982	1558.0 191.4	3 31 41.6 59 19 31.7 299 02 16.4 336 49 02.6	183 31 32.7 239 18 49.1 119 05 18.5 156 50 25.2	Palm 2 Egmont Key L. H. Terraceia 2 Perico 2	8589.3 2934.0 12340.9 12452.0	3.933956 3.467467 4.091346 4.095240
Fort de Sota power house black stack 1908	27 36 50.308 82 44 08.167	1548.5 223.9	3 18 55.3 59 09 36.5 222 43 46.5 298 55 33.4	183 18 46.9 239 08 54.4 42 46 23.3 118 58 36.0	Palm 2 Egmont Key L. H. Pinelos 2 Terraceia 2	8577.8 2901.2 13643.8 12364.7	3.933375 3.462583 4.134935 4.092183
Quarantine building, tower on end of wharf 1908	27 36 53.838 82 43 31.000	1657.1 850.0	9 54 56 65 33 16 301 51 06 341 16 20	189 54 30 245 32 16 121 53 52 161 17 26	Palm 2 Egmont Key L. H. Terraceia 2 Perico 2	8803.5 3865.9 11540.3 12191.5	3.944653 3.586128 4.062217 4.086058
Quarantine station, high water tank 1908	27 37 01.974 82 43 34.266	60.8 939.5	9 04 55.8 61 38 40.5 220 45 40.0 302 39 29.0	189 04 31.7 241 37 42.7 40 48 01.1 122 42 15.9	Palm 2 Egmont Key L. H. Pinelos 2 Terraceia 2	9035.7 3887.1 12756.8 11749.7	3.955962 3.589624 4.105742 4.070025
Quarantine station, low water tank 1908	27 37 02.723 82 43 32.846	83.8 900.6	9 18 08.3 61 37 05.2 220 41 46.9 302 51 20.7	189 17 43.6 241 36 06.7 40 44 07.4 122 54 07.0	Palm 2 Egmont Key L. H. Pinelos 2 Terraceia 2	9064.7 3932.3 12713.9 11729.4	3.957353 3.594647 4.104279 4.069276
Hospital (Mullet Key) west gable 1908	27 37 10.54 82 43 10.65	324.4 292.0	344 27 02 12 43 28	164 27 58 192 42 53	Perico 2 Palm 2	12519 9417	4.09756 3.97393
Burslem (U. S. E.) 1908	27 35 45.345 82 35 51.439	1395.7 1410.6	35 08 13.2 160 05 53.1 214 50 58.4 217 07 33.6	215 07 25.9 340 04 39.4 34 52 42.2 37 09 39.6	Terraceia 2 Pinelos 2 Cockroach (U. S. E.) Indian Hill 2	4873.5 12782.5 10738.2 12344.3	3.687840 4.106615 4.030933 4.091465
Point Pinelos light 1908	27 41 47.598 82 36 28.673	1465.1 785.6	6 43 11.9 54 50 37.6 104 36 42.6 147 55 28.3 278 46 26.6 288 05 56.4	186 42 41.6 234 46 22.1 284 35 46.1 327 54 53.7 98 48 50.1 108 07 57.7	Terraceia 2 Egmont Key L. H. Pinelos 2 Ant 2 Indian Hill 2 Cockroach (U. S. E.)	15240.7 18459.2 3442.5 3839.7 8571.2 7528.0	4.183004 4.266212 3.536877 3.584292 3.933043 3.876682
St. Petersburg Club House flagstaff 1908	27 41 57.195 82 38 38.411	1760.5 1052.4	201 18 17.2 252 45 51.5 283 48 10.7 353 26 08.1	21 18 21.0 72 50 25.9 103 51 12.3 173 26 38.2	Pinelos 2 Mangrove (U. S. E.) Cockroach (U. S. E.) Terraceia 2	614.6 16919.0 11029.5 15533.2	2.788580 4.228374 4.042555 4.191260
Tampa Bay beacon No. 4 1908	27 43 15.064 82 36 10.234	463.7 280.4	296 39 50.3 307 06 32.8 64 34 29.8	116 42 05.4 127 08 25.6 244 33 24.9	Indian Hill 2 Cockroach (U. S. E.) Pinelos 2	8913.6 8339.0 4247.7	3.950053 3.921114 3.628158
Indian Hill light 1908	27 41 53.858 82 32 24.135	1657.7 661.2	310 20 07.8 349 50 20.2 93 52 29.9 109 19 24.4	130 20 37.6 169 50 27.9 273 49 39.7 289 16 56.0	Indian Hill 2 Cockroach (U. S. E.) Pinelos 2 Ant 2	2322.0 2573.8 10053.9 9259.0	3.365864 3.410577 4.002334 3.966564
Marshall (U. S. E.) 1908	27 42 16.747 82 30 51.909	515.5 1422.2	32 38 01.3 89 53 46.1 101 50 24.5 217 32 53.1	212 37 26.1 269 50 13.0 281 47 13.2 37 33 50.5	Cockroach (U. S. E.) Pinelos 2 Ant 2 Mangrove (U. S. E.)	3844.8 12557.7 11508.5 5550.9	3.584872 4.098909 4.061019 3.744366
Moody's house cupola 1908	27 43 05.357 82 28 42.784	164.9 1172.1	49 14 09 139 51 20 155 18 40 176 58 27	229 12 56 319 48 13 335 16 45 356 58 25	Indian Hill 2 Cedar Point (U. S. E.) Picnic Island Mangrove (U. S. E.)	5671 17037 16180 2908	3.75369 4.23139 4.20897 3.46365
St. Petersburg: Detroit House tower 1908	27 46 16.324 82 38 09.515	502.5 260.5	224 45 08.3 250 41 52.5 280 55 00.2 310 26 46.4 316 55 21.9	44 47 37.5 70 46 24.2 100 59 21.5 130 29 57.1 136 58 10.3	Picnic Island Gadsden 2 Mangrove (U. S. E.) Indian Hill 2 Cockroach (U. S. E.)	12425.5 16901.5 15651.1 14762.2 14523.3	4.094315 4.227926 4.194544 4.169152 4.162065
Power house stack 1908	27 46 16.050 82 37 59.426	494.0 1627.2	223 48 26.4 281 04 55.7 311 07 41.1 317 42 28.2	43 50 50.8 101 09 12.3 131 10 47.1 137 45 11.9	Picnic Island Mangrove (U. S. E.) Indian Hill 2 Cockroach (U. S. E.)	12238.7 15378.3 14547.6 14329.8	4.087734 4.186908 4.162790 4.156240
Schoolhouse cupola 1908	27 46 21.720 82 38 27.241	608.6 745.9	226 50 23.8 251 44 44.4 281 10 00.5 309 44 07.7 315 59 54.0	46 53 01.2 71 49 24.4 101 14 30.1 129 47 26.7 136 02 50.7	Picnic Island Gadsden 2 Mangrove (U. S. E.) Indian Hill 2 Cockroach (U. S. E.)	12657.7 17307.6 16159.2 15240.5 14978.0	4.102354 4.238236 4.208421 4.182999 4.175454

1 No check on this position.



## TAMPA BAY—Continued

Station	Latitude and longitude	Sec- onds in meters	Azimuth	Back azimuth	To station	Distance	Loga- rithm
<i>Supplementary points— Continued</i>							
St. Petersburg—Continued Sibley House tower 1908	° ' " 27 46 07.835 82 38 20.608	241.2 564.3	° ' " 224 53 33.1 250 12 41.4 279 47 01.1 308 54 53.6 315 20 38.7	° ' " 44 56 07.4 70 17 18.3 99 51 27.6 128 58 09.5 135 23 32.3	Picnic Island Gadsden 2 Mangrove (U. S. E.) Indian Hill 2 Cockroach (U. S. E.)	<i>Meters</i> 12824.9 17275.1 15903.0 14829.2 14545.4	4. 108055 4. 237421 4. 201478 4. 171117 4. 162727
Waterworks standpipe 1908	27 46 24.397 82 38 24.472	751.0 670.0	226 52 40.8 251 55 39.6 281 30 26.1 310 09 23.3 316 25 34.0	46 55 17.2 72 00 18.4 101 34 54.4 130 12 40.7 136 28 29.0	Picnic Island Gadsden 2 Mangrove (U. S. E.) Indian Hill 2 Cockroach (U. S. E.)	12546.0 17209.8 16101.1 15235.3 14985.1	4. 098504 4. 235777 4. 206856 4. 182852 4. 175659
South Cut, lower No. 6 light 1908	27 47 39.362 82 34 20.728	1211.6 567.4	337 45 06.2 344 30 36.1 36 12 19.4	157 46 30.4 164 31 38.1 216 10 45.1	Indian Hill 2 Cockroach (U. S. E.) Ant 2	13113.2 13664.1 9385.2	4. 117708 4. 135581 3. 972444
South Cut, upper No. 8 light 1908	27 48 37.006 82 34 22.988	1139.0 629.2	262 41 47.5 340 07 57.2 346 03 05.6 30 23 22.2	82 44 33.8 160 09 22.6 166 04 08.8 210 21 49.1	Gadsden 2 Indian Hill 2 Cockroach (U. S. E.) Ant 2	9831.5 14791.6 15396.1 10836.1	3. 992621 4. 170016 4. 187410 4. 034875
North Cut, lower No. 10 light 1908	27 49 50.848 82 34 01.238	1565.2 33.9	318 10 24.7 27 36 38.1 103 19 07.1 221 23 49.0	138 12 50.5 207 34 54.7 283 18 28.4 41 24 22.3	Mangrove (U. S. E.) Ant 2 Cedar Point (U. S. E.) Picnic Island	12848.2 13113.4 2332.3 2956.4	4. 108842 4. 117714 3. 367788 3. 470768
Steamer "Cool" wreck bea- con 1908	27 48 03.023 82 30 10.222	93.0 279.9	231 01 58.5 340 17 43.7 56 13 38.8 114 11 21.2 141 44 49.3	51 02 46.8 160 18 21.8 236 10 07.9 294 08 54.8 321 43 34.8	Gadsden 2 Mangrove (U. S. E.) Ant 2 Cedar Point (U. S. E.) Picnic Island	3645.1 6647.1 14924.0 9418.2 7051.4	3. 561706 3. 822633 4. 173884 3. 973968 3. 848277
Lowne (U. S. E. east base) 1908	27 49 33.235 82 30 08.205	1023.0 224.5	346 23 55.5 48 22 30.0 97 08 05.8	166 24 32.7 228 18 58.0 277 05 38.2	Mangrove (U. S. E.) Ant 2 Cedar Point (U. S. E.)	9295.4 16669.8 8713.9	3. 968269 4. 221930 3. 940215
Gadsden (U. S. E.) 1908	27 49 18.497 82 28 21.550	569.4 589.8	211 26 25.4 260 05 38.8 4 53 44.6 77 25 41.7	31 28 02.0 80 07 54.7 184 53 32.1 257 25 39.3	Ball Alafia 2 Mangrove (U. S. E.) Gadsden 2	10849.5 8088.9 8612.7 143.5	4. 035410 3. 907890 3. 935138 2. 156916
Young (U. S. E.) 1908	27 48 41.115 82 24 10.320	1265.5 282.5	45 42 49.0 99 04 53.9 203 17 37.0	225 40 39.4 279 02 54.3 23 17 55.7	Mangrove (U. S. E.) Gadsden 2 Alafia 2	10638.4 7104.9 2765.0	4. 026877 3. 851557 3. 441694
Alafia River light 1908	27 50 11.051 82 24 28.699	340.2 785.3	75 48 24.8 98 52 10.0 129 12 04.5 278 09 04.4	255 46 33.7 278 50 24.9 309 10 02.1 98 09 31.6	Gadsden 2 Catfish Point (U. S. E.) Ballast Point 2 Alafia 2	6717.9 6228.9 9236.2 1612.6	3. 827232 3. 794412 3. 965495 3. 207540
Old (U. S. E.) 1908	27 51 51.407 82 24 06.100	1582.4 166.9	343 34 37.2 72 33 16.7 109 28 15.4 163 44 25.8	163 34 53.9 252 31 21.0 289 26 02.4 343 44 03.0	Alafia 2 Catfish Point (U. S. E.) Ballast Point 2 Ball	3458.9 7099.3 8247.2 4738.1	3. 538941 3. 851217 3. 916307 3. 675607
Long Shoal beacon 1908	27 52 43.307 82 27 15.201	1333.0 415.9	23 12 39.5 113 49 07.5 232 29 12.1 308 36 44.8	203 12 12.2 293 48 23.0 52 30 17.9 128 38 29.9	Catfish Point (U. S. E.) Ballast Point 2 Ball Alafia 2	4056.0 2845.8 4847.1 7874.1	3. 608097 3. 454201 3. 685480 3. 896200
Wall's, Judge, house chim- ney 1908	27 52 39.966 82 29 01.165	1230.2 31.9	245 37 12.0 297 58 47.7 340 15 31.4	65 39 07.3 118 01 22.2 160 15 53.6	Ball Alafia 2 Catfish Point (U. S. E.)	7402.7 10250.5 3851.2	3. 869388 4. 010746 3. 585601
Ballast Point Hotel water tank 1908	27 53 22.022 82 28 52.622	677.9 1439.4	304 41 21.7 304 55 49.2 347 45 40.6	124 43 52.3 124 55 50.2 167 45 58.8	Alafia 2 Ballast Point 2 Catfish Point (U. S. E.)	10725.0 74.6 5033.8	4. 030395 1. 872806 3. 701900
Tampa Yacht Club house flagstaff 1908	27 53 13.316 82 28 51.738	409.9 1415.2	189 19 21.1 252 37 32.1 303 34 04.9 347 21 46.1	9 19 21.7 72 39 23.0 123 36 35.1 167 22 03.9	Ballast Point 2 Ball Alafia 2 Catfish Point (U. S. E.)	228.3 6794.8 10554.6 4767.0	2. 358438 3. 832175 4. 023441 3. 678241
Tampa Cut No. 2 light 1908	27 54 17.992 82 26 17.735	553.8 485.1	269 04 33.9 329 40 18.1 25 31 13.6 67 05 10.0	89 05 12.7 149 41 36.3 205 30 19.4 247 03 58.5	Ball Alafia 2 Catfish Point (U. S. E.) Ballast Point 2	2273.5 9070.4 7360.0 4532.8	3. 356700 3. 957626 3. 866880 3. 656371
Tampa Cut No. 4 light 1908	27 55 15.927 82 26 49.311	490.2 1348.3	299 06 30.1 15 18 46.3 43 01 19.6	119 07 23.8 195 18 06.9 223 00 23.0	Ball Catfish Point (U. S. E.) Ballast Point 2	3590.2 8735.6 4853.6	3. 555113 3. 941292 3. 686068
Richard's house (The Ga- bles) cupola. 1908	27 55 00.050 82 29 35.061	1.6 958.7	279 17 54.6 312 25 24.4 338 13 59.2	99 20 05.9 132 28 15.0 158 14 20.1	Ball Alafia 2 Ballast Point 2	7771.6 13519.6 3295.1	3. 890512 4. 130965 3. 517864
Spanish Sanitarium south gable 1908	27 55 04.699 82 29 31.761	144.6 868.5	280 27 25.8 313 07 40.3 340 32 31.5	100 29 35.6 133 10 29.4 160 32 50.9	Ball Alafia 2 Ballast Point 2	7707.3 13550.6 3397.3	3. 886901 4. 131959 3. 531129

## TAMPA BAY—Continued

Station	Latitude and longitude	Seconds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Supplementary points—Continued</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
Spanish Sanitarium west tank 1908	27 55 04.125 82 29 32.911	127.0 899.9	280 17 09.9 312 58 56.7 344 56 19.3 339 56 30.0	100 19 20.2 133 01 46.3 164 56 56.4 159 56 49.9	Ball Alafia 2 Catfish Point (U. S. E.) Ballast Point 2	7735.0 13561.5 8349.0 3391.3	3.888462 4.132308 3.921635 3.530362
Tampa west base (U. S. E.) 1908	27 54 51.328 82 27 54.901	1580.0 1501.2	281 20 19.9 3 49 18.7 28 31 45.6	101 21 44.3 183 49 10.0 208 31 19.7	Ball Catfish Point (U. S. E.) Ballast Point 2	5028.6 7685.6 3177.4	3.701445 3.885676 3.502078
Tampa east base (U. S. E.) 1908	27 55 28.576 82 27 01.381	878.8 37.8	301 38 06.4 329 59 55.7 12 38 21.6	121 39 05.7 150 01 34.3 192 37 47.8	Ball Alafia 2 Catfish Point (U. S. E.)	4071.9 11548.6 9033.8	3.609794 4.062528 3.955869
Tampa Bay Hotel electric plant stack 1908	27 56 52.146 82 27 49.197	1605.2 1344.8	314 35 48.1 330 36 19.0 3 21 32.7 14 24 58.3	134 37 09.8 150 38 20.0 183 21 21.2 194 24 29.6	Ball Alafia 2 Catfish Point (U. S. E.) Ballast Point 2	6705.0 14430.7 11407.0 6722.2	3.826401 4.159288 4.057172 3.827514
Tampa Bay Hotel north tower 1908	27 56 47.914 82 27 51.439	1474.9 1406.2	313 25 40.2 330 08 10.8 3 05 11.1 14 10 52.4	133 27 03.0 150 10 12.9 183 05 00.7 194 10 24.8	Ball Alafia 2 Catfish Point (U. S. E.) Ballast Point 2	6658.6 14347.9 11273.5 6580.8	3.823383 4.156788 4.052058 3.818282
Tampa: Morrison Villa tower 1908	27 56 01.910 82 28 18.136	58.8 495.9	299 35 36.5 324 27 55.6 359 16 52.2 10 04 30.9	119 37 11.8 144 30 10.2 179 16 54.3 190 04 15.8	Ball Alafia 2 Catfish Point (U. S. E.) Ballast Point 2	6400.8 13549.5 9841.9 5042.1	3.806235 4.131923 3.993078 3.702609
Hyde Park schoolhouse 1908	27 56 20.467 82 28 05.732	630.0 156.7	305 31 51.8 326 59 11.2 1 11 16.7 12 26 32.6	125 33 21.3 147 01 20.0 181 11 13.0 192 26 11.7	Ball Alafia 2 Catfish Point (U. S. E.) Ballast Point 2	6422.5 13830.6 10414.5 5668.6	3.807702 4.140842 4.017640 3.753476
Electric power house stack 1908	27 56 39.118 82 27 36.666	1204.1 1002.4	5 15 32.9 18 15 53.6 314 10 52.5 331 01 32.1	185 15 15.7 198 15 19.1 134 12 08.4 151 03 27.4	Catfish Point (U. S. E.) Ballast Point 2 Ball Alafia 2	11032.8 6433.6 6179.7 13913.6	4.042687 3.808456 3.790968 4.143440
Tower, Whiting and Franklin Streets 1908	27 56 43.458 82 27 25.398	1337.7 694.2	317 07 09.5 332 24 21.9 20 25 20.4	137 08 20.1 152 26 11.8 200 24 40.6	Ball Alafia 2 Ballast Point 2	6059.9 13885.3 6661.7	3.782465 4.142556 3.823588
First Presbyterian Church spire 1908	27 57 01.053 82 27 27.735	32.4 758.2	319 57 09.2 333 10 43.9 18 25 39.6	139 58 20.9 152 12 35.0 198 25 00.9	Ball Alafia 2 Ballast Point 2	6508.2 14396.2 7151.3	3.813461 4.158248 3.854388
Courthouse dome 1908	27 56 52.608 82 27 28.224	1619.4 771.5	318 20 36.0 332 39 22.9 6 13 04.5 19 00 16.5	138 21 47.9 152 41 14.2 186 12 43.3 198 59 38.0	Ball Alafia 2 Catfish Point (U. S. E.) Ballast Point 2	6320.3 14170.9 11469.1 6900.9	3.800738 4.151397 4.059530 3.838903
Episcopal Church spire 1908	27 56 56.178 82 27 23.952	1729.3 654.7	319 47 44.2 333 16 43.0 6 44 00.5 19 36 43.8	139 48 54.1 153 18 32.2 186 43 37.2 199 36 03.3	Ball Alafia 2 Catfish Point (U. S. E.) Ballast Point 2	6326.8 14215.7 11591.5 7043.2	3.801183 4.152767 4.064139 3.847770
Catholic Cathedral dome 1908	27 56 56.818 82 27 26.526	1749.0 725.1	319 25 37.8 333 03 40.5 6 22 36.4 19 01 07.0	139 26 48.9 153 05 30.9 186 22 14.3 199 00 27.7	Ball Alafia 2 Catfish Point (U. S. E.) Ballast Point 2	6387.4 14265.0 11603.0 7038.5	3.805323 4.154271 4.064569 3.847479
Convent dome 1908	27 57 01.047 82 27 21.482	32.2 587.2	321 07 25.8 333 47 23.0 6 58 30.0 19 43 05.6	141 08 34.6 153 49 11.1 186 58 05.6 199 42 24.0	Ball Alafia 2 Catfish Point (U. S. E.) Ballast Point 2	6399.4 14319.7 11748.3 7207.0	3.806141 4.155935 4.069975 3.857756
Sawmill, Central Avenue and Polk Streets, tall stack 1908	27 57 06.675 82 27 11.261	205.5 307.8	8 12 16.8 21 17 22.1 324 03 43.8 335 05 49.2	188 11 47.7 201 16 35.7 144 04 47.8 155 07 32.6	Catfish Point (U. S. E.) Ballast Point 2 Ball Alafia 2	11956.9 7467.2 6367.3 14355.5	4.077620 3.873156 3.803954 4.157018
Post Office building, central flagstaff (west pole) 1908	27 56 58.926 82 27 27.864	1813.9 761.7	319 33 18.6 6 09 45.4 18 34 04.9	139 34 30.4 186 09 24.1 198 33 26.3	Ball Catfish Point (U. S. E.) Ballast Point 2	6460.5 11663.5 7088.2	3.810266 4.066829 3.850533
Methodist Church spire 1908	27 57 08.553 82 27 32.858	263.3 898.2	320 18 05.2 333 05 48.9 5 21 29.8 16 49 03.5	140 19 19.3 153 07 42.3 185 21 10.7 196 48 27.2	Ball Alafia 2 Catfish Point (U. S. E.) Ballast Point 2	6775.2 14665.5 11944.6 7329.0	3.830919 4.166296 4.077173 3.865043
Crematory stack 1908	27 57 18.796 82 26 59.078	578.6 1614.9	328 22 47.0 336 54 20.2 9 29 08.6 22 33 10.5	148 23 45.3 156 55 57.8 189 28 33.7 202 32 18.4	Ball Alafia 2 Catfish Point (U. S. E.) Ballast Point 2	6492.3 14560.9 12276.9 7937.7	3.812400 4.163188 4.092610 3.899694
Central Avenue Church spire 1908	27 57 46.069 82 27 19.342	1418.1 528.7	328 08 11.9 6 29 39.8 16 57 01.0	148 09 19.7 186 29 14.4 196 56 18.4	Ball Catfish Point (U. S. E.) Ballast Point 2	7497.7 13131.5 8541.3	3.874927 4.118314 3.931525
Michigan Avenue school-house 1908	27 57 58.892 82 27 27.518	1812.8 752.1	328 16 10.1 336 04 31.1 14 49 19.8	148 17 21.7 156 06 22.0 194 48 41.0	Ball Alafia 2 Ballast Point 2	7950.9 16002.8 8859.8	3.900417 4.204197 3.947426



## TAMPA BAY—Continued

Station	Latitude and longitude	Seconds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Supplementary points—Con</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
West Tampa Waterworks standpipe 1908	27 57 25.690 82 28 38.425	790.8 1050.4	313 09 35.0 328 12 56.1 356 52 20.6 2 28 59.7	133 11 19.8 148 15 20.2 176 52 32.2 182 28 54.1	Ball Alafia 2 Catfish Point (U.S.E.) Ballast Point 2	8390.8 16004.8 12438.5 7550.3	3.923805 4.204249 4.094768 3.877964
Ybor City Brewery tower 1908	27 57 31.279 82 26 45.560	962.8 1245.4	332 50 07.7 10 49 59.8 23 52 17.3	152 50 59.7 190 49 18.7 203 51 18.9	Ball Catfish Point (U.S.E.) Ballast Point 2	6645.9 12820.3 8436.5	3.822554 4.107897 3.926160
Ybor City iron water tank, Twelfth Avenue and Twenty-first Street 1908	27 57 47.468 82 26 09.318	1461.2 254.7	342 19 31.5 343 03 21.0 14 33 56.0 28 12 34.2	162 20 06.5 163 04 35.5 194 32 57.9 208 11 18.8	Ball Alafia 2 Catfish Point (U.S.E.) Ballast Point 2	6729.1 14925.1 13524.6 9319.7	3.827954 4.173918 4.131126 3.969403
Ybor City water tank (tall iron), Ninth and Fourteenth Streets 1908	27 57 39.770 82 26 41.412	1224.2 1132.0	334 41 01.3 339 34 34.2 8 14 28.0 11 06 22.2 23 51 30.2	154 41 51.3 159 36 03.6 188 13 28.7 191 05 39.0 203 50 29.8	Ball Alafia 2 Mangrove (U.S.E.) Catfish Point (U.S.E.) Ballast Point 2	6830.2 14981.7 24261.2 13098.5 8721.4	3.834435 4.175500 4.384913 3.107220 3.940585
Ybor City tobacco factory cupola 1908	27 56 51.110 82 26 04.372	1573.3 119.5	337 48 27.1 17 17 58.3 35 01 42.1	157 48 59.8 197 16 57.9 215 00 24.4	Ball Catfish Point (U.S.E.) Ballast Point 2	5050.8 11893.0 7910.8	3.703358 4.075292 3.898222
Port Tampa west base (U.S.E.) 1908	27 50 19.316 82 31 57.992	594.6 1586.9	333 34 53.4 37 06 44.6 86 34 22.2 133 25 40.6	153 36 21.8 217 04 03.7 266 32 45.9 313 25 16.3	Mangrove (U.S.E.) Ant 2 Cedar Point (U.S.E.) Picnic Island	11671.1 15667.5 5652.3 1951.3	4.067111 4.195000 3.752224 3.290320
Port Tampa: Oil tank, top (large yellow, east) 1908	27 51 34.661 82 32 19.196	1066.9 525.2	62 18 08.1 190 49 47.9 40 33 40.7	242 16 41.8 10 50 01.2 220 33 26.4	Cedar Point (U.S.E.) Dave Picnic Island	5717.0 4129.9 1287.1	3.757170 3.615942 3.109610
Catholic Church spire 1908	27 51 51.379 82 31 34.212	1581.5 936.0	54 10 54.8 63 15 13.6 112 25 28.1	234 10 19.5 243 13 26.2 292 22 15.5	Picnic Island Cedar Point (U.S.E.) Dog	2550.0 7046.8 12192.7	3.406538 3.847992 4.086101
Electric power house stack 1908	27 51 54.033 82 31 11.870	1663.2 1145.4	49 43 58.7 32 42 23.9 61 51 48.7	229 43 27.0 212 39 35.4 241 50 04.8	Picnic Island Ant 2 Cedar Point (U.S.E.)	2435.3 18312.8 6898.5	3.386545 4.262754 3.838757
Water tank (red iron, head of slip) 1908	27 51 43.511 82 32 30.532	1339.3 835.3	58 20 32.4 116 41 25.2 196 00 50.7	238 19 11.3 296 38 38.9 16 01 09.3	Cedar Point (U.S.E.) Dog Dave	5582.4 10891.1 3936.7	3.746820 4.037071 3.595136
Long phosphate elevator west gable 1908	27 51 43.129 82 32 48.826	1327.6 1335.8	55 31 52.1 117 58 40.2 202 40 53.1 1 12 51.0	235 30 39.6 297 56 02.5 22 41 20.2 181 12 50.5	Cedar Point (U.S.E.) Dog Dave Picnic Island	5156.4 10451.9 4113.9 1238.8	3.712347 4.019194 3.614256 3.093004
Long phosphate elevator east gable 1908	27 51 43.547 82 32 45.099	1340.4 1233.9	56 02 44.5 117 39 23.0 201 25 31.9 5 50 58.2	236 01 30.3 297 36 43.6 21 25 57.3 185 50 56.0	Cedar Point (U.S.E.) Dog Dave Picnic Island	5248.0 10536.0 4063.7 1257.9	3.719990 4.022677 3.608923 3.099662
East elevator, end of dock 1908	27 51 39.378 82 33 08.406	1212.1 230.0	119 59 30.6 208 28 46.4 335 35 54.4 52 58 01.9	299 57 02.1 28 29 22.8 155 36 03.1 232 56 58.5	Dog Dave Picnic Island Cedar Point (U.S.E.)	10039.2 4449.8 1233.2 4654.1	4.001698 3.648339 3.091041 3.667835
West elevator, end of dock 1908	27 51 40.084 82 33 11.459	1233.8 313.5	120 07 24.6 209 33 10.2 332 36 52.0 52 07 27.8	300 04 57.5 29 33 48.0 152 37 02.1 232 06 25.8	Dog Dave Picnic Island Cedar Point (U.S.E.)	9956.0 4471.3 1289.3 4601.0	3.998086 3.650436 3.110339 3.662850
Frazier's Beach, north house chimney <sup>1</sup> 1908	27 56 45.14 82 32 19.19	1389.5 524.6	66 22 23 351 58 16	246 19 31 171 58 29	Dog Dave	10959 5555	4.03979 3.74469
Rocky Point, house chimney 1908	27 57 43.018 82 34 14.382	1324.2 393.1	7 46 12.4 48 07 46.6 331 39 58.8	187 45 39.6 228 05 48.5 151 41 06.0	Cedar Point (U.S.E.) Dog Dave	14126.6 9253.5 8272.8	4.150037 3.966304 3.917650
Green Springs, chimney Mrs. Cohen's house <sup>1</sup> 1908	27 59 22.87 82 41 19.93	704.0 544.6	284 19 00 332 50 10	104 22 17 152 51 31	Rocky Point Dog	11868 10398	4.07437 4.01694
Green Springs, top of water tank <sup>1</sup> 1908	27 59 25.36 82 41 17.32	780.6 473.3	284 45 41 333 22 41	104 48 57 153 24 01	Rocky Point Dog	11818 10434	4.07253 4.01843

## BOCA CEIGA BAY TO CLEARWATER HARBOR

<i>Principal points</i>						
Turn 1873	27 42 14.710 82 43 33.168	452.8 908.7	269 45 59.9 16 44 27.7	89 48 21.1 196 43 29.3	Pinelos Egmont Key L. H.	8324.2 11980.1 3.920341 4.078459

<sup>1</sup> No check on this position.

## BOCA CEIGA BAY TO CLEARWATER HARBOR—Continued

Station	Latitude and longitude	Sec- onds in meters	Azimuth	Back azimuth	To station	Distance	Loga- rithm
<i>Principal points—Contd</i>							
Shell Point 1873	° ' "		° ' "	° ' "		<i>Meters</i>	
	27 42 22.809	702.0	33 53 49.0	213 51 35.7	Egmont Key L. H.	14119.2	4.149810
	82 40 51.865	1420.9	86 46 54.9	266 45 39.9	Turn	4426.3	3.646040
Bird 1873	27 40 07.022	216.1	41 03 27.1	221 01 36.0	Egmont Key L. H.	10000.0	4.000012
	82 41 39.486	1082.2	141 36 27.2	321 35 34.4	Turn	5015.1	3.700279
			197 20 09.1	17 20 31.2	Shell Point	4378.6	3.641331
			232 44 33.2	52 46 01.5	Pineios	6545.2	3.815026
Point 1873	27 43 08.782	270.3	313 31 42.5	133 32 07.8	Shell Point	2054.6	3.312720
	82 41 46.237	1266.7	358 06 21.8	178 06 25.0	Bird	5597.7	3.748013
			60 24 13.2	240 23 23.5	Turn	3369.2	3.527533
Oyster 1873	27 43 24.022	739.4	278 18 32.1	98 19 26.5	Point	3243.2	3.510974
	82 43 43.386	1188.4	352 31 28.2	172 31 32.9	Turn	2151.8	3.332794
Sand 1873	27 44 14.345	441.6	322 54 11.6	142 54 37.5	Point	2530.0	3.403123
	82 42 41.943	1148.8	20 51 46.4	200 51 22.5	Turn	3940.8	3.595579
			47 22 40.8	227 22 12.3	Oyster	2287.3	3.356324
Mound 1873	27 44 50.626	1558.3	287 21 48.2	107 22 48.8	Sand	3740.4	3.572917
	82 44 52.284	1431.9	324 42 02.2	144 42 34.3	Oyster	3266.1	3.514030
Crab 1873	27 45 10.413	320.5	301 51 01.0	121 51 48.2	Sand	3269.9	3.514531
	82 44 23.352	639.5	341 30 52.3	161 31 11.0	Oyster	3452.9	3.538188
			52 27 07.1	232 26 53.7	Mound	999.4	2.999726
Queen 1873	27 45 57.987	1784.9	313 19 15.8	133 19 42.2	Crab	2134.2	3.329240
	82 45 20.050	549.0	339 51 33.5	159 51 46.5	Mound	2208.5	3.344088
Cedar 1873	27 46 32.672	1005.7	344 41 00.8	164 41 12.6	Crab	2625.2	3.419167
	82 44 48.674	1332.7	1 48 09.2	181 48 07.7	Mound	3142.6	3.497292
			38 49 28.2	218 49 13.6	Queen	1370.4	3.136838
Sague 1873	27 47 13.162	405.1	332 55 28.0	152 55 38.8	Cedar	1399.7	3.146035
	82 45 11.943	327.0	5 28 47.3	185 28 43.5	Queen	2324.6	3.366346
Snake 1873	27 47 18.215	560.6	274 30 15.1	94 30 48.7	Sague	1978.6	3.296360
	82 46 23.993	656.8	298 14 16.4	118 15 00.8	Cedar	2962.3	3.471635
			324 39 42.7	144 40 12.5	Queen	3027.1	3.481030
Turtle Crawl 1873	27 48 00.996	30.7	307 30 16.1	127 30 48.8	Sague	2418.1	3.383480
	82 46 22.014	602.6	2 21 21.2	182 21 20.3	Snake	1317.9	3.119895
Mast 1873	27 47 51.592	1588.0	254 16 11.8	74 16 29.3	Turtle Crawl	1067.9	3.028513
	82 46 59.564	1630.5	291 52 08.0	111 52 58.2	Sague	3174.8	3.501713
			316 31 56.0	136 32 12.6	Snake	1415.5	3.150915
Double 1873	27 48 33.692	1037.1	298 10 46.5	118 11 18.5	Turtle Crawl	2130.9	3.328557
	82 47 30.632	838.4	326 43 24.3	146 43 38.8	Mast	1550.0	3.190332
Pole 1873	27 48 16.835	518.2	221 45 11.3	41 45 19.2	Double	695.5	2.842315
	82 47 47.554	1301.6	281 45 24.5	101 46 04.4	Turtle Crawl	2391.7	3.378703
			300 36 03.8	120 36 26.2	Mast	1526.2	3.183620
Stump 1873	27 48 52.975	1630.6	313 45 51.2	133 46 01.8	Double	858.1	2.933546
	82 47 53.274	1458.1	351 59 19.9	171 59 22.6	Pole	1123.4	3.050534
Extra 1873	27 48 39.146	1205.0	248 54 01.7	68 54 20.5	Stump	1182.6	3.072841
	82 48 33.585	919.3	275 33 39.8	95 34 09.2	Double	1731.3	3.238360
			298 35 25.7	118 35 47.2	Pole	1435.0	3.156841
Crow 1873	27 49 32.203	991.3	330 20 29.3	150 20 41.0	Stump	1389.5	3.142861
	82 48 18.395	503.4	14 16 58.5	194 16 51.4	Extra	1685.2	3.226664
Pass 1873	27 49 28.640	881.6	266 07 55.3	86 08 23.0	Crow	1627.4	3.211505
	82 49 17.726	485.2	295 24 02.1	115 24 41.4	Stump	2558.8	3.408040
			321 34 59.3	141 35 19.9	Extra	1944.4	3.288777
Faint 1873	27 50 17.013	523.7	302 47 46.5	122 48 23.0	Crow	2546.1	3.405877
	82 49 36.600	1001.6	340 52 04.1	160 52 12.9	Pass	1576.0	3.197560
Indian 1873	27 50 08.806	271.2	254 15 37.6	74 19 53.0	Faint	935.0	2.970820
	82 50 09.499	250.9	290 19 35.3	110 20 27.2	Crow	3242.5	3.510885
			311 06 24.2	131 06 48.4	Pass	1880.5	3.274264
Fisherman 1873	27 50 29.555	909.8	296 37 40.2	116 38 02.4	Faint	861.2	2.935109
	82 50 04.734	129.5	11 32 28.6	191 32 26.4	Indian	651.8	2.814102
Cutter 1873	27 50 23.928	736.5	248 23 40.6	68 23 45.0	Fisherman	470.4	2.672473
	82 50 20.717	566.9	279 59 46.6	100 00 07.2	Faint	1225.8	3.088431
			326 35 29.1	146 35 34.3	Indian	557.5	2.746260
Twice 1873	27 50 41.950	1291.3	294 59 34.4	114 59 48.3	Fisherman	902.9	2.955656
	82 50 34.642	947.9	325 30 54.2	145 31 00.7	Cutter	673.0	2.828900
Creek 1873	27 50 58.283	1794.0	332 45 54.6	152 46 02.3	Fisherman	994.5	2.997607
	82 50 21.367	584.9	359 02 14.6	179 02 14.9	Cutter	1087.6	3.024327
			35 50 59.0	215 50 52.8	Twice	620.2	2.792556
Cute 1873	27 51 20.169	620.8	312 27 26.1	132 27 38.7	Creek	997.9	2.999097
	82 50 48.275	1320.8	342 24 22.7	162 24 29.1	Twice	1234.1	3.091359



## TRIANGULATION ALONG THE WEST COAST OF FLORIDA.

29

## BOCA CEIGA BAY TO CLEARWATER HARBOR—Continued

Station	Latitude and longitude	Sec- onds in meters	Azimuth	Back azimuth	To station	Distance	Loga- rithm
<i>Principal points—Contd</i>	° ' "		° ' "	° ' "		<i>Meters</i>	
Pines 1873	27 51 48.824 82 50 39.161	1502.9 1071.4	342 37 20.3 15 47 09.5	162 37 28.6 195 47 05.2	Creek Cute	1630.1 916.6	3.212221 2.962198
Narrows 1873	27 52 02.129 82 50 58.993	65.5 1613.9	307 02 45.4 347 12 31.5	127 02 54.7 167 12 36.5	Pines Cute	679.8 1324.5	2.832367 3.122046
Shortest 1873	27 52 16.633 82 50 53.319	512.0 1458.6	335 39 11.0 19 10 20.8	155 39 17.6 199 10 18.1	Pines Narrows	939.5 472.7	2.972915 2.674544
Short 1873	27 52 22.141 82 51 01.825	681.5 49.9	306 04 38.1 352 49 51.2	126 04 42.1 172 49 52.5	Shortest Narrows	287.9 620.8	2.459258 2.792979
Indian Rock 1873	27 52 30.654 82 50 57.396	943.5 1570.1	345 30 33.6 24 48 41.9	165 30 35.5 204 48 39.8	Shortest Short	445.8 288.7	2.649121 2.460452
Polaris 1873	27 52 39.328 82 51 04.003	1210.6 109.5	325 54 13.3 353 34 23.9	145 54 16.4 173 34 24.9	Indian Rock Short	322.4 532.4	2.508407 2.726228
Thompson 1873	27 52 53.568 82 50 42.176	1648.9 1153.6	30 33 09.7 53 43 00.5	210 33 02.6 233 42 50.3	Indian Rock Polaris	819.0 740.7	2.913293 2.869625
Sands 1873	27 53 37.285 82 50 59.725	1147.7 1633.5	340 22 05.9 3 45 11.7	160 22 14.1 183 45 09.7	Thompson Polaris	1428.7 1787.8	3.154945 3.252327
McKays Point 2 1873	27 54 12.930 82 49 59.507	398.0 1627.4	25 32 15.6 56 19 52.5	205 31 55.6 236 19 24.3	Thompson Sands	2707.3 1978.9	3.432539 3.296426
Sand Key south base 1873	27 56 03.134 82 50 29.552	96.5 808.0	346 23 02.5 3 23 11.9 10 24 55.9	166 23 16.6 183 23 06.0 190 24 41.8	McKays Point 2 Thompson Sands	3490.3 5845.3 4564.6	3.542865 3.768809 3.659406
Prickly Point 1873	27 55 27.787 82 49 26.430	855.3 722.7	21 26 02.4 122 13 59.4	201 25 46.9 302 13 29.8	McKays Point 2 Sand Key south base	2475.4 2040.2	3.393641 3.309668
Sand Key north base 1873	27 57 43.068 82 49 55.109	1325.7 1596.3	349 20 08.2 17 01 14.3	169 20 21.7 197 00 58.2	Prickly Point Sand Key south base	4237.4 3217.03	3.627095 3.507455
Clearwater Harbor astro- nomic station 1873	27 56 36.588 82 48 40.107	1126.2 1096.4	30 52 57.4 71 00 55.4 134 57 06.5	210 52 35.7 251 00 04.1 314 56 31.3	Prickly Point Sand Key south base Sand Key north base	2467.6 3164.3 2896.7	3.392275 3.500282 3.461905
Clearwater Bluff 1861	27 57 32.569 82 48 17.480	1002.5 477.8	19 44 47.4	199 44 36.8	Clearwater Harbor as- tronomic station	1830.8	3.262652
			52 40 57.9 96 54 42.6	232 39 56.0 276 53 56.8	Sand Key south base Sand Key north base	4540.3 2688.0	3.657081 3.429430
Tomlinson 1908	27 41 11.089 82 43 47.684	341.3 1306.6	17 47 22.5 322 08 07.6	197 46 30.8 142 09 31.5	Egmont Key L. H. Mullet Key Shoal light	9991.9 8075.6	3.999649 3.907176
Maximo 1908	27 42 23.772 82 40 52.226	731.7 1430.8	359 01 35.2 33 47 47.7 65 03 20.7	179 01 37.7 213 45 34.6 245 01 59.2	Mullet Key Shoal light Egmont Key L. H. Tomlinson	8614.9 14138.4 5302.5	3.935249 4.150399 3.724483
Oyster 2 1908	27 43 25.120 82 43 44.997	773.2 1232.6	291 44 21.4 1 01 21.0	111 45 41.8 181 01 19.8	Maximo Tomlinson	5095.8 4126.2	3.707214 3.615551
South Point 1908	27 44 39.423 82 44 45.994	1213.5 1259.7	303 05 30.5 323 50 53.7 346 00 30.9	123 07 19.2 143 51 22.0 166 00 58.0	Maximo Oyster 2 Tomlinson	7644.5 2832.4 6608.6	3.883348 3.452147 3.820111
Bear Creek 1908	27 45 10.120 82 44 21.672	311.5 593.5	311 44 09.5 342 43 57.7 352 47 08.6 35 11 02.7	131 45 46.9 162 44 14.7 172 47 24.4 215 10 51.4	Maximo Oyster 2 Tomlinson South Point	7689.6 3384.5 7416.2 1156.1	3.885906 3.529496 3.870184 3.062983
Devils Elbow (U. S. E.) 1908	27 45 39.183 82 45 35.447	1206.1 970.7	293 52 45.2 323 38 06.1	113 53 19.5 143 38 29.1	Bear Creek South Point	2209.5 2284.2	3.344292 3.358740
Between 1908	27 46 33.312 82 44 48.107	1025.4 1317.2	344 12 49.6 359 03 15.7 37 53 08.5	164 13 01.9 179 03 16.7 217 52 46.5	Bear Creek South Point Devils Elbow (U.S.E.)	2661.1 3506.1 2111.0	3.425055 3.544821 3.324482
Johns Pass (U. S. E.) 1908	27 47 11.462 82 46 32.444	352.8 888.2	292 20 25.4 331 12 40.0	112 21 14.0 151 13 06.6	Between Devils Elbow (U.S.E.)	3088.5 3240.9	3.489750 3.510667
Turtle 1908	27 48 01.571 82 46 22.177	48.4 607.1	316 31 28.0 343 43 26.2 10 19 41.2	136 32 11.8 163 43 47.9 190 19 36.4	Between Devils Elbow (U.S.E.) Johns Pass (U. S. E.)	3743.3 4565.7 1567.8	3.573259 3.659511 3.195288
Gulf 1908	27 48 27.516 82 48 42.856	847.0 1173.0	281 42 26.9 303 14 48.1	101 43 32.5 123 15 48.9	Turtle Johns Pass (U. S. E.)	3932.7 4269.0	3.594688 3.630330
Double 2 1908	27 48 34.008 82 47 28.311	1046.8 774.9	298 52 30.5 328 57 12.2 84 24 39.8	118 53 01.3 148 57 38.2 264 24 05.0	Turtle Johns Pass (U. S. E.) Gulf	2067.3 2965.6 2050.2	3.315407 3.472108 3.311789
Wait (U. S. E.) 1908	27 49 34.430 82 49 34.941	1059.8 956.3	298 12 41.1 325 18 33.4	118 13 40.2 145 18 57.7	Double Gulf	3933.2 2504.9	3.594750 3.398786
Oak 1908	27 49 53.983 82 48 44.571	1661.6 1219.7	319 42 10.2 358 59 22.8 66 24 56.1	139 42 45.8 178 59 23.6 246 24 32.6	Double Gulf Wait (U. S. E.)	3227.4 2662.0 1504.1	3.508852 3.425203 3.177279

## BOCA CEIGA BAY TO CLEARWATER HARBOR—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Principal points—Contd</i>							
Rhodes 1908	27 50 01.079 82 50 02.927	33.2 80.1	275 48 41.8 316 57 50.7	95 49 18.4 136 58 03.8	Oak Wait (U. S. E.)	<i>Meters</i> 2155.3 1122.3	3.333514 3.050090
Fisherman (U. S. E.) 1908	27 50 23.358 82 49 58.699	719.0 1606.2	294 01 14.0 336 38 59.6 9 34 36.3	114 01 48.6 156 39 10.7 189 34 34.3	Oak Wait (U. S. E.) Rhodes	2220.9 1640.4 695.5	3.346524 3.214953 2.842276
Sweat 1908	27 50 23.960 82 50 20.585	737.5 563.3	271 46 17.4 289 20 43.0 325 32 46.4	91 46 27.6 109 21 27.8 145 32 54.6	Fisherman (U. S. E.) Oak Rhodes	599.2 2784.7 854.1	2.777553 3.444779 2.931525
Kay 1906	27 54 12.577 82 49 58.160	387.1 1590.6	26 20 17.7 165 50 44.6	206 19 57.1 345 50 29.9	Thompson Sand Key south base	2713.6 3509.7	3.433553 3.545271
Prickly 1906	27 55 28.037 82 49 25.006	863.0 683.7	21 19 23.9 23 56 20.8 121 28 40.6	201 19 08.4 203 55 44.7 301 28 10.4	Kay Thompson Sand Key south base	2493.5 5202.1 2069.2	3.396801 3.716179 3.315798
Bellevue 1906	27 56 34.116 82 48 42.951	1050.2 1174.1	29 28 53.0 71 53 13.7	209 28 33.3 251 52 23.8	Prickly Sand Key south base	2336.5 3066.4	3.368564 3.486631
<i>Supplementary points</i>							
Plaza Hotel, west flagpole <sup>1</sup> 1908	27 41 59.625 82 44 14.402	1835.2 394.6	262 20 40.2 333 53 31.0	82 22 14.2 153 53 43.4	Maximo Tomlinson	5588.8 1663.7	3.747320 3.221072
Veteran City pavilion, west gable 1908	27 44 12.314 82 42 28.642	379.0 784.5	21 13 14.7 55 13 18.4 102 30 56.4	201 12 37.9 235 12 42.8 282 29 52.5	Tomlinson Oyster 2 South Point	5983.8 2546.4 3853.3	3.776975 3.405932 3.585832
Veteran City machine shops, west gable 1908	27 44 17.652 82 42 29.172	543.3 799.0	20 32 19.3 52 06 09.6 100 08 53.4	200 31 42.8 232 05 34.3 280 07 49.7	Tomlinson Oyster 2 South Point	6132.1 2632.1 3806.8	3.787610 3.420308 3.580558
Veteran City, flagpole 1908	27 44 37.131 82 42 28.355	1142.9 776.6	18 55 11.3 43 26 52.0 91 04 52.8	198 54 34.4 223 26 16.3 271 03 48.7	Tomlinson Oyster 2 South Point	6704.1 3052.9 3770.3	3.826342 3.484705 3.576373
Veteran City, west electric car pole, end of pier 1908	27 44 10.173 82 42 28.741	313.1 787.2	21 25 37.4 56 25 23.8 103 28 39.9	201 25 00.7 236 24 48.3 283 27 36.0	Tomlinson Oyster 2 South Point	5921.4 2507.2 3865.5	3.772425 3.420308 3.587202
Crawl Point, peak of square roof <sup>1</sup> 1908	27 48 10.303 82 46 24.093	317.2 659.5	318 38 26.8 7 11 39.7	138 39 11.5 187 11 35.8	Between Johns Pass (U. S. E.)	3977.2 1825.6	3.599578 3.261398
Lone Palmetto 1908	27 48 30.063 82 48 45.499	925.3 1245.4	180 31 58.3 282 35 47.0 303 35 44.7 317 50 52.4	00 31 58.8 102 36 53.8 123 36 46.7 137 50 53.7	Oak Turtle Johns Pass (U. S. E.) Gulf	2595.2 4018.6 4371.5 1105.7	3.414170 3.604071 3.640626 2.024274
Rhodes house, south gable lookout pole 1908	27 50 02.806 82 50 03.677	86.4 100.6	192 09 07.6 277 08 42.4 317 59 59.6 338 52 03.8	12 09 09.9 97 09 19.3 138 00 13.0 158 52 04.1	Fisherman (U. S. E.) Oak Wait (U. S. E.) Rhodes	647.1 2181.7 1175.3 57.0	2.811004 3.338802 3.070146 1.755545
Sweat's fish-camp house, south gable lookout pole. 1908	27 50 21.286 82 50 20.087	655.2 549.6	263 46 35.6 287 49 04.8 319 24 51.1 322 56 48.6	83 46 45.6 107 49 49.4 139 25 12.2 142 56 56.6	Fisherman (U. S. E.) Oak Wait (U. S. E.) Rhodes	588.7 2745.5 1899.1 779.3	2.769911 3.438628 3.278540 2.891714
Bellevue water tower 1906	27 56 15.151 82 48 47.274	466.4 1292.4	26 51 51.4 35 25 42.0 82 28 15.5 191 26 41.3	206 50 57.6 215 25 24.3 262 27 27.6 11 26 43.3	Thompson Prickly Sand Key south base Bellevue	6955.2 1779.7 2820.6 595.6	3.842312 3.250352 3.450339 2.774963
Bellevue Hotel west gable 1906	27 56 36.771 82 48 40.779	1131.9 1114.8	25 47 47.0 29 45 05.0 36 00 06.7 70 48 35.6	205 46 50.2 209 44 44.3 216 00 05.7 250 47 44.7	Thompson Prickly Bellevue Sand Key south base	7630.5 2434.9 101.0 3148.8	3.882551 3.386835 2.004406 3.498147
Bellevue longitude station 1907	27 56 34.14 82 48 42.95	1050.9 1174.1	0	180	Bellevue	0.81	9.9085
Clearwater latitude station 1873	27 56 36.00 82 48 40.34	1126.6 1102.8					
Clearwater water tower, Col. Scott's estate <sup>1</sup> 1906	27 57 35.22 82 48 14.62	1084.1 399.6	26 10 46 52 28 05	206 10 13 232 27 01	Prickly Sand Key south base	4362.2 4651.9	3.639707 3.667633

## GAINESVILLE TO CLEARWATER HARBOR

<i>Principal points</i>							
Odd Fellow 1897	29 38 58.709 82 18 45.817	1809.4 1232.4	210 42 56.2	30 43 07.5	Gainesville	1198.6	3.0786873
Gainesville courthouse spire 1897	29 39 04.711 82 19 28.586	145.0 768.8	244 18 51.3 279 02 00.4	64 19 23.7 99 02 21.6	Gainesville Odd Fellow	1955.7 1164.8	3.291300 3.066235

<sup>1</sup> No check on this position.



## GAINESVILLE TO CLEARWATER HARBOR—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Principal points—Contd</i>							
Colclough Hill 1898	29 37 29.936 82 19 46.314	921.7 1246.0	189 16 47.4 210 44 49.6	9 16 56.2 30 45 19.5	Gainesville courthouse spire Odd Fellow	<i>Meters</i> 2956.8 3182.6	3.470819 3.502786
Murphy 1898	29 38 18.327 82 20 41.001	564.3 1102.9	233 44 42.4 315 21 37.2	53 45 18.2 135 22 04.2	Gainesville courthouse spire Colclough Hill	2415.2 2093.8	3.382958 3.320938
Day 1898	29 37 23.865 82 22 27.051	734.8 727.7	239 32 47.2 267 30 49.7	59 33 39.6 87 32 09.1	Murphy Colclough Hill	3309.2 4328.3	3.519717 3.636316
Sutherland 1898	29 34 54.871 82 27 11.047	1689.4 297.3	239 00 14.4	59 02 34.7	Day	8913.1	3.9500275
Dutton 1898	29 29 33.282 82 34 33.795	1024.7 910.4	230 15 29.0	50 19 07.3	Sutherland	15497.0	4.1902464
Bronson 1898	29 26 53.858 82 38 13.360	1658.2 360.0	230 18 06.4	50 19 54.4	Dutton	7687.0	3.8857568
Turn 1898	29 25 19.426 82 40 23.369	598.1 629.9	230 18 29.2	50 19 33.1	Bronson	4553.2	3.6583195
Waccasassa 1898	29 20 42.050 82 44 02.906	1294.7 78.4	214 42 57.0	34 44 44.7	Turn	10391.3	4.0166683
Rosewood 1898	29 13 45.877 82 56 33.189	1412.5 896.3	237 37 39.4	57 43 46.4	Waccasassa	23964.5	4.3795676
Oyster Cove 1898	29 10 46.322 83 01 16.118	1426.2 435.5	234 06 10.3	54 08 28.4	Rosewood	9432.6	3.9746298
Cedar Keys L. H. 1874	29 05 46.455 83 03 55.612	1430.3 1503.8	205 01 16.3	25 02 33.9	Oyster Cove	10189.1	4.008136
Black Point 2 1874	29 10 50.527 83 03 47.139	1555.7 1273.6	271 48 25.2 1 24 07.4	91 49 38.8 181 24 03.3	Oyster Cove Cedar Keys L. H.	4082.6 9364.3	3.610938 3.971477
North Key 1874	29 08 02.383 83 05 09.368	73.4 253.2	203 13 39.6 231 18 08.9 334 31 00.2	23 14 19.7 51 19 57.7 154 31 36.2	Black Point 2 Oyster Cove Cedar Keys L. H.	5633.5 8075.4 4635.7	3.750782 3.907164 3.666111
Pelican Shoal 2 1874	29 09 58.281 83 06 14.944	1794.3 403.8	248 03 11.2 333 34 52.6 334 04 46.6	68 04 23.2 153 35 24.5 154 05 54.4	Black Point 2 North Key Cedar Keys L. H.	4305.7 3984.1 8619.5	3.634040 3.600331 3.935481
Lime Point 2 1874	29 08 46.960 83 03 20.630	1445.8 557.6	9 39 38.8 64 58 42.5 115 00 06.5 169 20 14.0	189 39 21.8 244 57 49.4 294 58 41.6 349 20 01.0	Cedar Keys L. H. North Key Pelican Shoal 2 Black Point 2	5637.1 3243.8 5197.6 3871.2	3.751057 3.511059 3.715804 3.587843
Snake Key 2 1874	29 05 55.767 83 01 56.380	1716.9 1524.5	84 55 35.7 126 46 34.7	264 54 37.7 306 45 00.8	Cedar Keys L. H. North Key	3236.9 6513.1	3.510133 3.813785
South Reef 1874	29 07 19.458 82 58 45.219	599.0 1222.5	63 30 59.3 71 10 58.3	243 29 26.3 251 08 27.3	Snake Key 2 Cedar Keys L. H.	5775.3 8867.5	3.761571 3.947803
Cottrell 1874	29 07 27.149 83 01 53.854	835.8 1455.9	1 23 25.9 46 43 44.1 101 36 41.0 123 24 57.4 136 20 07.0 272 38 44.0	181 23 24.9 226 42 44.9 281 35 05.8 303 22 50.3 316 19 24.9 92 40 16.0	Snake Key 2 Cedar Keys L. H. North Key Pelican Shoal 2 Lime Point 2 South Reef	2814.2 4522.0 5395.5 8452.9 3397.0 5105.2	3.449354 3.655330 3.732033 3.927004 3.531098 3.708014
North Reef 1874	29 09 19.703 83 00 03.415	606.6 92.3	330 16 13.1 25 56 44.4 40 45 06.3 43 43 50.7 96 46 17.0	150 16 51.1 205 55 49.4 220 44 12.4 223 41 57.7 276 43 16.0	South Reef Snake Key 2 Cottrell Cedar Keys L. H. Pelican Shoal 2	4262.9 6981.9 4573.8 9083.3 10110.6	3.629708 3.843974 3.660275 3.958245 4.004775
South Point 2 1874	29 07 36.780 83 03 12.698	1132.4 343.3	277 54 50.9 326 25 48.2 18 51 48.8 104 02 25.5 174 20 01.1	97 55 29.2 146 26 25.3 198 51 27.9 284 01 28.7 354 19 57.3	Cottrell Snake Key 2 Cedar Keys L. H. North Key Lime Point 2	2152.0 3732.2 3559.3 3250.9 2171.3	3.332841 3.571961 3.555009 3.512007 3.336710
Way Key south base 1851	29 07 55.567 83 02 18.544	1710.8 501.3	280 25 01.5 322 39 29.6 68 26 41.7	100 28 08.6 142 39 41.6 248 26 15.3	Oyster Reef south 2 Cottrell South Point 2	5832.2 1100.4 1574.1	3.765834 3.041563 3.197020
Way Key north base 1851	29 08 12.678 83 01 43.410	390.3 1173.5	11 23 18.4 60 59 10.1	191 23 13.3 240 58 53.0	Cottrell Way Key south base	1429.8 1086.05	3.155288 3.035848
Harbor Key 2 1874	29 07 04.464 83 02 27.140	137.4 733.8	128 56 03.3 188 24 05.4 232 10 57.6	308 55 41.1 8 24 09.6 52 11 13.7	South Point 2 Way Key south base Cottrell	1583.3 1590.4 1139.1	3.199561 3.201501 3.056571
Way Key south base 2 1877	29 07 55.566 83 02 18.543	1710.8 501.2	8 24 15.6 68 26 47.8	188 24 11.4 248 26 21.4	Harbor Key 2 South Point 2	1590.4 1574.1	3.201495 3.197028
Daughtry Island northeast base 1877	29 08 09.560 83 02 52.547	294.0 1420.5	295 05 40.9 341 04 40.4 28 21 59.3	115 05 57.5 161 04 52.8 208 21 49.5	Way Key south base 2 Harbor Key 2 South Point 2	1015.0 2118.3 1146.6	3.006485 3.325979 3.059393

## GAINESVILLE TO CLEARWATER HARBOR—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Loga-rithm
<i>Principal points—Contd</i>	<i>° ' "</i>		<i>° ' "</i>	<i>° ' "</i>		<i>Meters</i>	
Daughtry Island south-west base 1877	29 07 54.277 83 03 10.943	1671.1 295.8	226 36 04.2 268 23 31.1 322 19 23.2 5 01 53.7	46 36 13.1 88 23 56.6 142 19 44.5 185 01 52.8	Daughtry Island northeast base Way Key south base 2 Harbor Key 2 South Point 2	684.38 1417.1 1937.6 540.8	2.835299 3.151393 3.287260 2.733009
Oyster Reef south 2 1856	29 07 21.197 82 58 46.362	652.6 1253.4	235 18 19.7 280 31 20.0	55 20 21.9 100 33 35.4	Mainland east Waccasassa Reef	8248.0 7652.8	3.916351 3.883823
Mainland 1856	29 10 07.237 82 57 30.290	222.8 818.5	275 03 23.3 319 58 41.5 21 54 59.7	95 04 48.5 140 00 19.9 201 54 22.6	Mainland east Waccasassa Reef Oyster Reef south 2	4744.2 8501.7 5509.9	3.676165 3.929507 3.741147
Oyster Reef B 3 1856	29 09 21.758 83 00 03.600	669.9 98.9	251 19 24.9 203 40 00.4 330 37 07.0	71 20 39.6 83 42 40.3 150 37 44.6	Mainland Mainland east Oyster Reef south 2	4374.9 8924.9 4259.4	3.640968 3.950903 3.629349
Oyster Reef C 1856	29 08 30.597 82 58 59.488	942.0 1608.0	219 00 35.2 350 34 12.8 132 14 52.3	39 01 18.7 170 34 19.2 312 14 21.1	Mainland Oyster Reef south 2 Oyster Reef B 3	3829.4 2165.9 2342.9	3.583125 3.335633 3.369759
Depot Key 1851	29 07 27.095 83 01 54.795	834.2 1481.3	143 48 52.9 192 24 17.4 220 23 20.1 247 34 11.2 272 01 43.5	323 47 17.5 12 22 59.1 40 24 14.2 67 35 36.4 92 03 15.2	Way Key south base Way Key north base Oyster Reef B 3 Oyster Reef C Oyster Reef south 2	1086.3 1436.7 4635.3 5126.4 5097.5	3.035934 3.157356 3.666077 3.709809 3.707354
Waccasassa Reef 1856	29 06 35.723 82 54 08.084	1099.8 218.6	84 35 08.6 97 11 50.7 100 12 21.6 117 44 59.3	264 30 22.8 277 08 04.1 280 10 06.7 297 42 06.3	Cedar Keys L. H. Cottrell South Reef North Reef	15959.0 12691.9 7612.8 10851.3	4.203006 4.103526 3.881545 4.035481
Mainland east 1856	29 09 53.624 82 54 35.416	1651.0 957.1	353 05 03.2 54 54 41.7 69 11 46.1 83 18 10.3	173 05 16.5 234 52 40.1 249 08 12.4 263 15 30.5	Waccasassa Reef South Reef Cottrell North Reef	6137.4 8253.3 12679.6 8925.5	3.787987 3.916630 4.103107 3.950632
Grassy Point 1856	29 09 14.134 82 49 58.491	435.2 1580.8	54 09 22.8 99 14 45.1	234 07 21.3 279 12 30.2	Waccasassa Reef Mainland east	8325.2 7582.1	3.920395 3.879789
Middle Marsh 1857	29 04 42.654 82 47 51.286	1313.2 1387.1	108 53 13.8 157 38 32.2	288 50 10.6 337 37 30.3	Waccasassa Reef Grassy Point	10767.7 9038.0	4.032123 3.956072
Basin Rock 1857	29 02 40.067 82 48 02.996	1233.6 81.0	126 19 50.7 184 47 50.0	306 16 53.3 4 47 55.7	Waccasassa Reef Middle Marsh	12253.2 3787.3	4.088249 3.578334
Crane Island 1857	29 01 13.170 82 45 42.236	405.5 1143.0	125 05 37.6 151 34 48.2	305 04 29.3 331 33 45.6	Basin Rock Middle Marsh	4654.4 7333.7	3.667868 3.865324
Sand Shoal 1 1857	28 59 25.220 82 47 14.690	776.4 397.7	167 42 33.2 174 13 00.9 216 58 16.4	347 42 09.8 354 12 43.1 36 59 01.2	Basin Rock Middle Marsh Crane Island	6139.5 9822.8 4160.2	3.788134 3.992236 3.619109
Marsh Island 1857	28 59 02.111 82 45 04.940	65.0 133.7	101 27 34.4 165 57 23.1	281 26 31.5 345 57 05.0	Sand Shoal 1 Crane Island	3583.7 4159.2	3.554333 3.619015
Half Moon Bar 1857	28 56 53.840 82 45 21.188	1657.5 573.8	146 36 25.9 186 21 20.4	326 35 30.9 6 21 28.3	Sand Shoal 1 Marsh Island	5582.4 3973.4	3.746824 3.599166
Little Island 1857	28 57 01.188 82 43 04.439	36.6 120.2	86 30 48.3 123 13 11.4 138 46 37.4	266 29 42.1 303 11 10.2 318 45 39.1	Half Moon Bar Sand Shoal 1 Marsh Island	3710.1 8097.5 4950.1	3.569383 3.908350 3.694616
Crystal Reef 1857	28 54 28.889 82 44 51.803	889.4 1403.3	169 53 22.1 211 48 01.3	349 53 07.9 31 48 53.2	Half Moon Bar Little Island	4532.9 5517.3	3.656379 3.741727
Shell Point 1857	28 55 07.452 82 41 59.534	229.4 1612.7	75 44 17.3 120 57 51.8 153 20 47.0	255 42 54.0 300 56 14.3 333 20 15.6	Crystal Reef Half Moon Bar Little Island	4815.3 6368.4 3918.0	3.682624 3.804032 3.593064
Bear Island 1857	28 52 16.533 82 41 05.690	509.0 154.2	123 38 32.0 164 30 27.4	303 36 42.8 344 30 01.4	Crystal Reef Shell Point	7358.0 5460.4	3.860757 3.737226
Bird Key 1857	28 48 44.452 82 45 12.305	1368.5 333.6	182 59 53.8 225 39 37.5	3 00 03.7 45 41 36.4	Crystal Reef Bear Island	10618.4 9844.6	4.026058 3.970560
Ragged Island 1858	28 48 53.087 82 42 01.780	1634.3 48.3	87 04 01.2 155 59 11.6	267 02 29.4 335 57 49.5	Bird Key Crystal Reef	5173.0 11318.5	3.713741 4.053790
Homosassa Point 1858	28 46 24.734 82 44 25.477	761.4 691.1	163 33 11.7 220 27 51.2	343 32 49.2 40 29 00.4	Bird Key Ragged Island	4484.9 6003.9	3.651751 3.778430
Tuckers Island 1858	28 46 19.994 82 41 50.549	615.5 1371.2	91 59 57.0 176 18 10.2	271 58 42.4 356 18 04.8	Homosassa Point Ragged Island	4205.1 4722.9	3.623776 3.674210
Chassahowitzka Point 1858	28 43 02.451 82 43 13.644	75.4 370.3	162 37 31.6 200 20 09.3	342 36 57.1 20 20 49.3	Homosassa Point Tuckers Island	6525.3 6485.9	3.814598 3.811972
Rocky Ridge 1859	28 43 17.744 82 40 35.285	546.3 957.0	83 45 32.9 132 40 54.2 160 00 17.9	263 44 16.8 312 39 03.5 339 59 41.7	Chassahowitzka Point Homosassa Point Tuckers Island	4323.5 8493.9 5970.7	3.635837 3.929108 3.776026
Little Rock 1859	28 39 41.673 82 42 15.482	1282.9 420.4	165 40 26.2 202 14 01.2	345 39 58.3 22 14 49.3	Chassahowitzka Point Rocky Ridge	6379.5 7186.4	3.804786 3.856514



## GAINESVILLE TO CLEARWATER HARBOR—Continued

Station	Latitude and longitude	Sec- onds in meters	Azimuth	Back azimuth	To station	Distance	Loga- rithm
<i>Principal points—Contd</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
Herrings Bluff 1859	28 39 42.573 82 39 22.390	1310.6 608.0	89 40 25.6 163 22 19.2	269 39 02.6 343 21 44.2	Little Rock Rocky Ridge	4700.3 6913.4	3.672126 3.839689
Raccoon Point 1859	28 36 24.881 82 39 44.159	765.9 1199.7	145 51 18.9 185 32 51.4	325 50 06.4 5 33 01.8	Little Rock Herrings Bluff	7320.9 6114.6	3.864565 3.786367
New Reef 1859	28 36 43.272 82 42 56.070	1332.1 1523.2	191 20 49.8 276 11 04.1	11 21 09.3 96 12 36.0	Little Rock Raccoon Point	5601.6 5244.5	3.748313 3.719702
Beacon Rock 1859	28 32 53.207 82 42 24.709	1638.0 671.7	173 08 25.9 213 47 40.1	353 08 10.9 33 48 56.9	New Reef Raccoon Point	7133.6 7842.1	3.853306 3.894434
Bayport 1859	28 31 44.800 82 39 31.387	1379.1 853.4	114 05 31.9 177 41 42.6	294 04 09.1 357 41 36.5	Beacon Rock Raccoon Point	5161.2 8629.2	3.712747 3.935968
West Rock 1859	28 29 43.214 82 43 42.033	1330.3 1143.1	199 46 00.5 241 12 35.0	19 46 37.4 61 14 34.6	Beacon Rock Bayport	6215.2 7775.9	3.793457 3.890752
Long Key 1859	28 26 29.722 82 40 36.249	915.0 986.4	139 41 51.2 165 58 39.5	319 40 22.6 345 57 47.7	West Rock Beacon Rock Bayport	7811.8 12168.3 9858.6	3.892750 4.085229 3.993815
Coral Rock 1860	28 23 54.612 82 45 15.798	1681.2 430.0	193 22 01.7 237 52 11.1	13 22 46.4 57 54 24.1	West Rock Long Key	11030.5 8982.6	4.042595 3.953401
Southeast Point 1860	28 22 15.101 82 42 37.108	464.9 1010.4	125 20 53.9 202 45 37.2	305 19 38.5 22 46 34.7	Coral Rock Long Key	5296.2 8500.6	3.723967 3.929450
Pelican Point 1860	28 19 24.804 82 43 54.812	763.5 1493.1	165 08 05.9 201 58 41.9	345 07 27.4 21 59 18.8	Coral Rock Southeast Point	8593.5 5653.4	3.934169 3.752311
South St. Martin 1860	28 19 54.725 82 48 33.418	1684.6 910.3	245 58 19.5 276 54 05.0	66 01 08.7 96 56 17.2	Southeast Point Pelican Point	10622.5 7645.0	4.026227 3.883376
Deer Island 1860	28 15 15.526 82 45 31.606	477.9 861.6	150 03 06.1 198 57 46.3	330 01 39.9 18 58 32.2	South St. Martin Pelican Point	9920.3 8114.3	3.996526 3.909251
North Anclote 1860	28 12 33.971 82 50 27.946	1045.7 762.1	192 56 54.5 238 22 02.7	12 57 48.7 58 24 22.9	South St. Martin Deer Island	13922.3 9487.5	4.143710 3.977150
Tiger Point 1861	28 11 08.379 82 47 57.008	257.9 1555.0	122 37 51.5 207 30 58.2	302 36 40.2 27 32 07.0	North Anclote Deer Island	4887.6 8579.0	3.689092 3.933439
South Anclote 1860	28 10 00.070 82 50 33.536	2.2 914.8	181 50 35.3 243 46 16.7	1 50 37.9 63 47 30.6	North Anclote Tiger Point	4740.0 4759.6	3.675778 3.677567
Piney Point 1860	28 09 41.239 82 47 55.742	1269.5 1520.8	97 40 45.9 142 01 41.3	277 39 31.4 322 00 29.4	South Anclote North Anclote	4343.8 6746.0	3.637865 3.829045
Hog Island north 1861	28 04 59.122 82 49 37.047	1819.9 1011.5	170 33 19.1 197 39 12.6	350 32 52.5 17 40 00.4	South Anclote Piney Point	9391.4 9113.8	3.972728 3.959699
Indian Bluff 1861	28 06 15.976 82 46 56.932	491.7 1554.0	61 35 13.4 139 25 18.1	241 33 58.0 319 23 36.0	Hog Island north South Anclote Piney Point	4970.2 9084.3 6519.2	3.696376 3.958290 3.814192
Bayonet Point 1861	28 02 58.128 82 47 19.282	1789.3 526.6	134 43 22.5 185 43 14.2	314 42 17.7 5 43 24.7	Hog Island north Indian Bluff	5293.7 6120.7	3.723763 3.786804
St. Joseph Flat 1861	28 01 48.673 82 48 48.517	1498.2 1325.2	167 15 53.0 228 44 14.7	347 15 30.2 48 44 56.6	Hog Island north Bayonet Point	6010.4 3242.1	3.778904 3.510829
Orange Grove 1861	28 01 26.993 82 47 28.929	830.9 790.3	107 04 12.6 151 49 29.6	287 03 35.2 331 48 28.9	St. Joseph Flat Hog Island north Bayonet Point	2274.2 7408.2 2817.7	3.356827 3.869711 3.449894
Elbow Key 1861	28 00 21.223 82 48 31.402	653.3 858.0	170 08 52.7 220 07 39.5	350 08 44.7 40 08 08.8	St. Joseph Flat Orange Grove	2732.2 2648.0	3.436517 3.422914
Long Reach 1861	27 59 09.415 82 47 54.292	289.8 1483.7	155 21 33.1 189 17 29.1	335 21 15.7 9 17 41.0	Elbow Key Orange Grove Clearwater Bluff	2431.9 4291.3 3047.8	3.385943 3.632585 3.483982
Blind Key 1861	27 58 49.500 82 48 57.303	1523.7 1566.0	194 04 14.4 250 23 58.1	14 04 26.6 70 24 27.7	Elbow Key Long Reach Clearwater Bluff	2910.8 1827.8 2606.2	3.464010 3.261933 3.416016
			335 18 50.0 37 41 33.7	155 19 08.7 217 41 06.6	Sand Key north base	2606.2 2584.1	3.416016 3.412314
Cormorant Rock 1857	29 06 11.124 82 50 34.672	342.5 937.5	327 43 22.8 97 29 28.0	147 44 36.5 277 27 44.2	Basin Rock Waccasassa Reef	7684.5 5819.9	3.885616 3.764919
Turtle Creek 1857	29 06 59.668 82 47 28.152	1837.0 761.1	73 30 21.0 86 07 36.7	253 28 50.2 266 04 22.1	Cormorant Rock Waccasassa Reef	5260.0 10838.2	3.720983 4.034958
Harbor Key 3 1910	29 07 04.353 83 02 27.300	134.0 738.1	338 23 51.7 44 52 54.4	158 24 06.7 224 52 11.4	Snake Key 2 Cedar Keys L. H. North Key	2271.0 3384.3 4731.6	3.356221 3.529469 3.675008
South Point 3 1910	29 07 35.900 83 03 10.346	1105.3 279.4	309 50 40.9 327 01 22.3	129 51 01.8 147 01 58.3	Harbor Key 3 Snake Key 2 Cedar Keys L. H. North Key	1515.8 3674.6 3584.9 3319.2	3.180639 3.565214 3.554474 3.521033

## GAINESVILLE TO CLEARWATER HARBOR—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Loga-rithm
<i>Principal points—Contd</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
Key North	29 07 12.932	398.1	258 29 51.8	78 30 54.4	South Point 3	3548.9	3.550088
1910	83 05 18.984	513.3	293 25 51.4	113 27 30.0	Snake Key 2	5971.0	3.776048
			319 44 20.2	139 45 00.8	Cedar Keys L. H.	3488.5	3.542642
Water	29 02 12.010	369.8	187 51 54.0	7 52 12.3	Cormorant Rock	7431.5	3.871079
1901	82 51 12.280	332.3	260 24 48.7	80 26 20.6	Basin Rock	5193.7	3.715474
Sand	28 59 24.546	755.7	127 55 21.1	307 53 22.4	Water	8391.8	3.923853
1901	82 47 07.623	206.4	155 54 17.0	335 52 36.4	Cormorant Rock	13713.5	4.137147
			166 01 26.9	346 01 00.1	Basin Rock	6203.1	3.792612
Hunt	28 59 35.931	1106.2	81 41 53.1	261 41 10.1	Sand	2425.8	3.384862
1901	82 45 38.946	1054.2	118 03 53.5	298 01 11.8	Water	10220.9	4.009491
			145 29 42.2	325 28 32.2	Basin Rock	6879.9	3.837582
Half Moon	28 56 58.038	1786.8	146 46 16.0	326 45 23.1	Sand	5392.6	3.731795
1901	82 45 18.457	499.8	157 05 05.3	337 03 45.6	Basin Rock	11433.0	4.058159
			173 29 27.7	353 29 17.8	Hunt	4892.5	3.689531
Little Pass	27 58 02.683	82.5	333 43 59.1	153 44 22.2	Bellevue	3040.1	3.482886
1910	82 49 32.165	879.2	357 38 43.0	177 38 46.4	Prickly	4764.3	3.677997
			23 05 30.4	203 05 03.5	Sand Key south base	4000.3	3.602097
Stevens	27 59 08.020	246.9	15 32 22.3	195 31 59.7	Bellevue	4917.1	3.691710
1910	82 47 54.764	1496.3	52 56 00.3	232 55 14.6	Little Pass	3336.2	3.523258
Big Pass	28 00 18.294	563.1	325 13 34.8	145 14 00.6	Stevens	2633.4	3.420511
1910	82 48 49.725	1358.5	358 27 46.0	178 27 49.2	Bellevue	6903.1	3.839044
			15 31 46.2	195 31 26.3	Little Pass	4332.5	3.636736
Curlew	28 02 58.295	1794.4	8 04 30.3	188 04 13.0	Stevens	7159.3	3.854870
1910	82 47 17.963	490.5	26 58 45.5	206 58 02.4	Big Pass	5526.3	3.742436
Mud	28 01 53.673	1652.0	231 32 36.0	51 33 19.1	Curlew	3198.9	3.505001
1910	82 48 49.685	1357.1	343 35 57.0	163 36 22.8	Stevens	5315.3	3.725529
			0 01 17.1	180 01 17.1	Big Pass	2936.0	3.467749
Seaside	28 04 55.864	1719.6	6 57 48.0	186 57 40.4	Curlew	3645.9	3.561809
1910	82 47 01.778	48.5	27 43 34.6	207 42 43.9	Mud	6335.3	3.801768
North Hog Island	28 04 58.594	1803.6	271 07 36.2	91 08 49.1	Seaside	4233.9	3.626740
1910	82 49 36.822	1005.4	314 18 46.1	134 19 51.4	Curlew	5300.0	3.724276
			347 15 15.3	167 15 37.5	Mud	5836.0	3.766115
Palmetto Key	28 10 05.605	172.5	348 05 47.3	168 06 22.0	Seaside	9744.0	3.988736
1910	82 48 15.392	419.9	13 14 17.8	193 13 39.4	North Hog Island	9708.4	3.987147
Anclote L. H.	28 10 00.478	14.7	267 43 14.6	87 44 23.4	Palmetto Key	3985.0	3.600428
1910	82 50 41.350	1128.0	327 24 13.8	147 25 57.3	Seaside	11123.1	4.046420
			349 15 53.6	169 16 24.0	North Hog Island	9458.2	3.975898
North Anclote 2	28 12 38.941	1198.6	322 33 20.5	142 34 23.1	Palmetto Key	5944.5	3.774112
1910	83 00 27.872	760.2	4 18 38.3	184 18 32.0	Anclote L. H.	4891.8	3.689466
Bailey's Bluff	28 12 21.358	657.4	26 55 12.3	206 54 35.6	Palmetto Key	4686.5	3.670849
1910	82 46 57.615	1571.2	54 36 57.9	234 35 12.2	Anclote L. H.	7486.6	3.874283
			95 24 23.0	275 22 43.6	North Anclote 2	5759.3	3.760371
<i>Supplementary points</i>							
Turn beacon	29 06 11.099	341.7	187 37 47.7	7 37 54.0	South Point 3	2634.1	3.420632
1910	83 03 23.283	629.6	222 42 38.1	42 43 05.3	Harbor Key 3	2231.4	3.345582
			281 21 06.2	101 21 48.5	Snake Key 2	2396.8	3.379638
Dredged day beacon	29 07 36.260	1116.3	349 39 59.9	169 40 40.1	Snake Key 2	3144.9	3.497600
1910	83 02 17.241	466.1	15 28 27.3	195 28 22.4	Harbor Key 3	1019.3	3.008286
			89 33 41.3	269 33 15.5	South Point 3	1435.7	3.157054
Depot Key azimuth station	29 07 27.402	843.7	280 56 30.2	100 56 30.9	Cottrell	41.1	1.613766
1874	83 01 55.346	1493.2	46 18 14.8	226 17 16.3	Cedar Keys L. H.	4498.1	3.653028
Outer beacon	28 58 30.294	932.6	201 36 49.6	21 38 44.2	Key North	17309.1	4.238275
1910	83 09 14.814	401.1	212 43 39.1	32 46 14.0	Cedar Keys L. H.	15965.7	4.203189
			220 49 45.8	40 53 18.6	Snake Key 2	18133.3	4.258478
Taylor <sup>1</sup>	28 57 56.09	1745.3	165 13 42	345 13 29	Sand	2797.2	3.446717
1901	82 46 41.28	1117.7	208 54 29	28 54 59	Hunt	3490.2	3.542853
South base (U.S.E.)	28 59 34.411	1059.4	82 45 35.5	262 44 52.7	Sand	2407.9	3.381644
1901	82 45 39.378	1065.9	194 00 55.1	14 00 55.3	Hunt	48.2	1.683362
North base (U. S. E.)	29 00 19.827	610.4	335 14 36.0	155 14 47.2	Hunt	1488.1	3.172646
1901	82 46 01.968	53.0	336 22 38.7	156 22 49.7	South base (U. S. E.)	1526.1	3.183570
			46 14 31.9	226 14 00.1	Sand	2460.6	3.391040
Windmill	28 59 40.946	1260.6	354 42 38.0	174 42 46.3	Half Moon	5036.8	3.702152
1901	82 45 35.604	963.7	78 32 51.0	258 32 06.4	Sand	2541.5	3.405089
			144 07 53.3	324 05 41.8	Basin Rock	6965.8	3.832882
Inglis flagstaff	28 59 39.752	1223.8	354 18 08.3	174 18 17.2	Half Moon	5003.3	3.699256
1901	82 45 36.901	996.1	79 13 29.4	259 12 45.4	Sand	2502.6	3.398398
			144 31 58.2	324 30 47.4	Basin Rock	6816.8	3.833582
Cage stake	28 59 07.648	235.5	170 57 27.3	350 57 08.7	Basin Rock	6822.0	3.820988
1901	82 47 24.529	604.0	221 20 13.5	41 20 21.7	Sand	682.9	2.840652
			253 02 56.4	73 03 47.6	Hunt	2987.8	3.475347

<sup>1</sup> No check on this position.



## GAINESVILLE TO CLEARWATER HARBOR—Continued

Station	Latitude and longitude	Sec- onds in meters	Azimuth	Back azimuth	To station	Distance	Loga- rithm
<i>Supplementary points—Con</i>	<i>° ' "</i>		<i>° ' "</i>	<i>° ' "</i>		<i>Meters</i>	
Barrel stake 1901	28 59 08.391 82 47 22.161	258.3 600.1	170 22 41.1 218 21 14.4 253 06 43.9	350 22 21.3 38 21 21.4 73 07 33.9	Basin Rock Sand Hunt	6609.8 634.2 2919.8	3.820188 2.802238 3.465352
Withlacoochee River light 1910	28 58 53.810 82 48 28.750	1656.6 778.3	254 14 03.7 304 39 40.5 185 42 50.4	74 15 26.0 124 41 12.7 5 42 55.7	Hunt Half Moon Basin Rock	4776.0 6265.0 7000.6	3.679068 3.796922 3.845135
Alfred <sup>1</sup> 1901	28 56 38.27 82 51 24.42	1178.2 661.3	206 04 04 233 37 14	26 05 41 53 39 18	Basin Rock Sand	12401.2 8634.0	4.093465 3.936211
New Alfred <sup>1</sup> 1901	28 56 27.75 82 51 27.82	854.3 753.4	205 48 00 232 17 40	25 49 39 52 19 46	Basin Rock Sand	12732.8 8902.7	4.104922 3.949521
Price <sup>1</sup> 1901	28 55 37.18 82 53 37.01	1144.6 1002.4	214 45 30 236 23 42	34 48 11 56 26 50	Basin Rock Sand	15850.9 12655.6	4.200055 4.102283
Pry <sup>1</sup> 1901	28 55 34.98 82 53 34.37	1076.9 931.0	214 24 22 235 57 32	34 27 03 56 00 39	Basin Rock Sand	15866.2 12633.9	4.200473 4.101538
New Shoal <sup>1</sup> 1901	28 56 33.33 82 54 22.65	1026.1 613.4	222 17 00 245 51 43	42 20 04 65 55 13	Basin Rock Sand	15267.1 12904.3	4.183757 4.110734
Shoal <sup>1</sup> 1901	28 56 36.80 82 54 37.70	1132.9 1021.0	223 39 52 247 00 12	43 43 03 67 03 50	Basin Rock Sand	15466.7 13235.1	4.189398 4.121726
Slatts <sup>1</sup> 1901	28 57 28.00 82 52 51.48	862.0 1393.9	219 04 55 248 53 57	39 07 15 68 56 43	Basin Rock Sand	12380.2 9976.8	4.092728 3.998993
Cage <sup>1</sup> 1901	28 57 43.45 82 52 52.80	1337.7 1429.6	220 38 31 251 33 23	40 40 51 71 36 10	Basin Rock Sand	12038.1 9849.7	4.080558 3.993423
Norwest <sup>1</sup> 1901	28 57 57.21 82 55 49.78	1761.3 1347.8	235 23 26 259 11 43	55 27 12 79 15 56	Basin Rock Sand	15344.2 14389.5	4.185944 4.158047
North <sup>1</sup> 1901	28 58 34.51 82 53 39.98	1062.4 1082.4	230 19 17 261 43 16	50 22 00 81 46 26	Basin Rock Sand	11846.1 10732.8	4.073577 4.030712
New North <sup>1</sup> 1901	28 58 30.04 82 53 39.82	924.8 1078.1	229 47 58 260 59 33	49 50 41 81 02 43	Basin Rock Sand	11931.0 10749.0	4.076675 4.031367

## CEDAR KEYS TO ST. MARKS RIVER

<i>Principal points</i>							
Number 6 1877	29 10 25.340 83 06 45.214	780.2 1221.7	260 49 58.5 329 30 50.5	80 51 25.3 149 31 37.2	Black Point 2 North Key	4873.8 5107.0	3.687866 3.708165
Reef 1876	29 13 33.581 83 08 16.785	1033.9 453.2	304 33 18.6 333 34 37.1 336 52 44.2	124 35 30.2 153 36 08.5 156 53 28.9	Black Point 2 North Key Number 6	8846.4 11385.0 6301.3	3.946768 4.056331 3.799433
Cabbage 1876	29 13 33.273 83 05 28.764	1024.4 776.9	357 03 13.4 19 38 56.2 90 07 52.2	177 03 22.9 199 38 18.9 270 06 30.2	North Key Number 6 Reef	10200.7 6143.5 4537.9	4.008630 3.788419 3.656854
Mallard 1876	29 17 13.195 83 10 02.540	406.3 68.6	312 28 14.8 337 05 54.2	132 30 28.6 157 06 45.9	Cabbage Reef	10024.2 7339.6	4.001051 3.865673
River 1876	29 16 07.105 83 06 28.186	218.8 761.0	31 49 22.2 109 23 19.6 341 16 49.5	211 48 29.2 289 21 34.8 161 17 18.5	Reef Mallard Cabbage	5562.4 6133.6 5000.6	3.745262 3.787719 3.699018
Number 5 1876	29 15 13.423 83 13 35.160	413.3 949.3	237 16 03.1 289 39 07.8	57 17 47.0 109 41 43.3	Mallard Reef	6822.4 9130.4	3.833935 3.960492
Ready 1876	29 22 02.515 83 12 24.365	77.4 657.1	336 44 32.8 8 37 47.2	156 45 42.2 188 37 12.6	Mallard Number 5	9694.8 12739.2	3.986537 4.105142
Number 4 1876	29 18 45.788 83 15 54.446	1409.7 1469.3	223 05 02.1 286 41 01.8	43 06 45.0 106 43 54.0	Ready Mallard	8295.0 9916.0	3.918814 3.996337
Bird 1876	29 25 43.384 83 17 08.171	1335.7 220.2	311 36 25.9 351 12 13.8	131 38 45.2 171 12 50.0	Ready Number 4	10237.1 13009.9	4.010176 4.114274
Number 3 1876	29 22 20.932 83 20 41.218	644.5 1111.6	222 38 50.7 272 23 20.9	42 40 35.3 92 27 24.6	Bird Ready	8476.3 13412.1	3.928207 4.127496
Scaffold 1874	29 28 30.952 83 19 55.578	953.0 1497.4	318 49 16.1 6 09 59.7	138 50 38.4 186 09 37.3	Bird Number 3	6853.4 11458.6	3.835908 4.059132
Number 2 1876	29 25 54.557 83 23 08.057	1679.7 217.2	227 06 55.2 272 00 23.1	47 08 29.8 92 03 19.9	Scaffold Bird	7077.4 9706.5	3.849876 3.987064
Horseshoe Point west base 1876	29 27 51.159 83 17 59.253	1575.1 1596.6	340 42 34.9 66 41 11.8 111 21 30.9	160 43 00.0 246 38 40.0 291 20 33.7	Bird Number 2 Scaffold	4167.9 9063.4 3365.2	3.619920 3.957292 3.527009

<sup>1</sup> No check on this position.

## CEDAR KEYS TO ST. MARKS RIVER—Continued

Station	Latitude and longitude	Sec- onds in meters	Azimuth	Back azimuth	To station	Distance	Loga- rithm
<i>Principal points—Contd</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
Horseshoe Point east base 1876	29 26 19.680 83 16 52.926	605.9 1426.5	20 11 23.4 85 39 02.9 147 36 15.2	200 11 15.9 285 35 58.6 327 35 42.6	Bird Number 2 Horseshoe Point west base	1190.7 10140.4 3335.79	3.075787 4.006055 3.523199
Bowlegs Point 1874	29 31 03.812 83 24 04.476	117.4 120.5	305 03 03.6 350 55 32.8	125 05 06.2 170 56 00.6	Scaffold Number 2	8191.5 9642.1	3.913361 3.984173
Charybdis 1874	29 29 25.864 83 27 47.896	796.3 1290.2	243 22 02.6 277 32 10.4	63 23 52.6 97 36 02.9	Bowlegs Point Scaffold	6731.1 12836.2	3.828084 4.108435
Fog Island azimuth station 1874	29 35 51.053 83 24 39.015	1571.9 1049.9	353 59 45.4 23 13 21.5	174 00 02.4 203 11 48.4	Bowlegs Point Charybdis	8892.6 12904.0	3.949031 4.110723
Scylla 1874	29 34 12.713 83 28 01.038	391.4 27.9	240 52 24.8 312 23 05.5	60 54 04.5 132 25 02.1	Fog Island azimuth station Bowlegs Point	6223.3 8625.2	3.794024 3.935767
Steinhatchee 1874	29 40 11.556 83 25 30.032	355.8 807.5	350 17 13.9 20 11 57.0	170 17 39.1 200 10 42.4	Fog Island azimuth station Scylla	8137.3 11771.9	3.910482 4.070845
Reliable 1874	29 36 21.914 83 27 28.115	674.7 756.5	204 10 58.3 281 47 01.1	24 11 56.7 101 48 24.6	Steinhatchee Fog Island azimuth station	7751.3 4648.4	3.889372 3.667302
Lamp 1874	29 37 28.421 83 24 31.556	875.1 848.9	3 49 50.0 66 41 33.9 162 37 01.9	183 49 46.3 246 40 06.6 342 36 33.0	Fog Island azimuth station Reliable Steinhatchee	3004.6 5172.9 5263.3	3.477790 3.713732 3.721262
Snipe 1874	29 41 14.257 83 29 05.715	439.0 153.7	288 23 50.8 343 44 03.9	108 25 37.6 163 44 52.2	Steinhatchee Reliable	6112.2 9376.1	3.786198 3.972024
Neptune 1874	29 38 40.173 83 30 11.820	1236.9 318.0	200 32 12.2 249 36 43.5	20 32 44.9 69 39 02.9	Snipe Steinhatchee	5066.3 8083.8	3.704692 3.907617
Point Edwards 1874	29 43 16.194 83 32 02.389	520.8 64.2	308 28 45.4 340 45 30.8	128 30 13.0 160 46 25.6	Snipe Neptune	6067.8 9024.5	3.783030 3.955423
Oceanus 1874	29 40 58.187 83 33 16.622	1791.6 446.9	205 02 09.7 265 47 16.1	25 02 46.5 85 49 20.4	Point Edwards Snipe	4714.5 6764.1	3.673437 3.830212
Piney Point 1874	29 45 33.931 83 35 06.136	1043.8 164.9	310 29 31.5 340 52 11.0	130 31 02.6 160 53 05.3	Point Edwards Oceanus	6493.8 8985.0	3.812502 3.953518
Amphitrite 1874	29 43 23.187 83 36 59.006	713.9 1610.1	217 12 46.0 271 21 47.8	37 13 42.4 91 24 15.3	Piney Point Point Edwards	5054.1 7998.6	3.703647 3.903013
Live Oak Point 1874	29 50 31.317 83 37 06.847	964.3 183.8	340 29 51.5 359 11 21.2	160 30 51.5 179 11 24.6	Piney Point Amphitrite	9714.4 13183.5	3.987415 4.120031
Narayda 1874	29 47 34.270 83 39 11.224	1055.2 301.5	211 29 03.4 299 21 35.7	31 30 05.3 119 23 37.4	Live Oak Point Piney Point	6393.0 7555.1	3.805706 3.878240
Clearwater Creek 1873	29 53 53.937 83 39 40.491	1660.8 1086.4	326 31 39.6 356 09 11.3	146 32 56.1 176 09 25.9	Live Oak Point Narayda	7478.3 11716.5	3.873801 4.068798
Triton 1874	29 51 05.313 83 40 50.479	163.6 1355.0	199 52 55.2 279 52 32.4	19 53 30.1 99 54 23.7	Clearwater Creek Live Oak Point	5521.3 6093.6	3.742041 3.784876
Soft 1873	29 56 00.523 83 42 44.137	16.1 1183.8	308 20 19.4 341 26 44.2	128 21 51.0 161 27 40.8	Clearwater Creek Triton	6281.7 9587.7	3.798079 3.981713
Syrinx 1873	29 53 43.155 83 43 22.839	1328.8 612.8	193 47 18.5 266 47 59.5	13 47 37.8 86 49 50.3	Soft Clearwater Creek	4355.2 5974.8	3.639007 3.776324
Solid 1873	29 57 37.023 83 45 45.919	1140.0 1231.3	301 21 04.5 331 56 07.8	121 22 35.3 151 57 19.2	Soft Syrinx	5709.0 8159.8	3.756558 3.914678
Doris 2 1873	29 55 10.243 83 46 35.978	315.4 965.1	196 32 25.2 256 00 13.1	16 32 50.2 76 02 08.8	Solid Soft	4714.7 6408.3	3.673454 3.806741
Hard 1873	29 58 59.124 83 49 50.180	1820.5 1345.1	291 05 28.1 323 31 28.8	111 07 30.1 143 33 05.7	Solid Doris 2	7019.6 8762.8	3.846313 3.942641
Rock Island 1873	29 58 15.945 83 49 48.718	490.9 1306.2	178 18 37.1 280 24 51.6 290 05 08.3	358 18 36.4 100 26 52.9 110 08 40.4	Hard Solid Soft	1330.1 6619.2 12124.8	3.123888 3.820806 4.083673
Nereus 1873	29 56 30.182 83 50 26.470	929.3 709.9	191 58 34.1 254 40 49.6	11 58 52.2 74 43 09.7	Hard Solid	4688.2 7799.5	3.671002 3.892069
False 1873	30 00 49.744 83 52 49.948	1531.7 1338.6	305 14 40.8 314 15 29.1 334 17 24.0	125 16 10.7 134 16 59.6 154 18 35.7	Hard Rock Island Nereus	5900.6 6784.1 8869.6	3.770896 3.831493 3.947904
Kelpie 1873	29 58 55.348 83 53 20.169	1704.2 540.6	192 56 55.0 268 48 06.6	12 57 10.1 88 49 51.6	False Hard	3614.3 5630.4	3.558029 3.750536
Econfenee 1873	30 02 12.363 83 55 58.425	380.7 1565.4	296 43 19.7 306 16 40.8 325 01 48.5	116 44 54.0 126 19 45.5 145 03 07.6	False Rock Island Kelpie	5654.9 12295.3 7401.9	3.752423 4.089738 3.869346



## CEDAR KEYS TO ST MARKS RIVER—Continued

Station	Latitude and longitude	Sec- onds in meters	Azimuth	Back azimuth	To station	Distance	Loga- rithm
<i>Principal points—Contd</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
Undine	30 00 25.006	770.0	204 31 54.0	24 32 22.2	Econfenee	3633.8	3.560360
1873	83 56 54.737	1467.0	263 21 35.8	83 23 38.2	False	6604.3	3.819827
Topog	30 03 50.211	1546.0	314 09 42.7	134 10 40.7	Econfenee	4324.0	3.635883
1873	83 57 54.201	1451.8	345 50 38.4	165 51 08.2	Undine	6516.3	3.814003
Naiad	30 02 17.269	531.7	212 11 12.4	32 11 46.1	Topog	3381.7	3.529135
1873	83 59 01.454	39.0	271 45 05.9	91 46 37.5	Econfenee	4906.1	3.690733
Ocilla River	30 04 37.704	1161.0	301 51 44.3	121 52 28.3	Topog	2769.8	3.442442
1859	83 59 22.026	589.8	352 44 09.1	172 44 19.4	Naiad	4359.2	3.639403
Oyster Bar	30 03 42.491	1308.4	229 55 09.1	49 55 46.9	Ocilla River	2640.7	3.421723
1873	84 00 37.471	1003.7	266 52 37.2	86 53 59.0	Topog	4379.7	3.641445
			315 33 56.1	135 34 44.2	Naiad	3674.5	3.565200
Marsh	30 06 04.349	133.9	305 28 24.8	125 29 34.9	Ocilla River	4596.2	3.662401
1873	84 01 41.790	1118.9	338 28 26.9	158 28 59.1	Oyster Bar	4695.4	3.671672
Coral	30 04 41.151	1267.1	210 02 05.1	30 02 32.8	Marsh	2959.3	3.471183
1873	84 02 37.110	993.8	271 09 01.3	91 10 39.0	Ocilla River	5225.7	3.718143
			299 24 03.2	119 25 03.1	Oyster Bar	3678.4	3.565655
Torrey	30 05 55.957	1723.0	266 45 16.2	86 46 41.9	Marsh	4580.8	3.660942
1859	84 04 32.601	872.9	306 40 14.1	126 41 12.0	Coral	3856.2	3.586159
Grey Mares	30 04 44.078	1357.2	211 36 35.6	31 37 01.1	Torrey	2598.9	3.414796
1859	84 05 23.475	628.5	247 22 46.0	67 24 37.3	Marsh	6430.3	3.808230
			271 08 51.1	91 10 14.5	Coral	4456.3	3.648979
Palmetto Island	30 05 04.004	123.3	247 35 33.4	67 36 46.1	Torrey	4198.5	3.623089
1859	84 06 57.563	1541.5	283 40 42.8	103 41 30.0	Grey Mares	2593.3	3.413857
Denham	30 06 44.890	1382.2	287 18 35.6	107 20 06.1	Torrey	5060.4	3.704183
1859	84 07 33.033	884.4	342 59 50.5	163 00 08.3	Palmetto Island	3248.4	3.511668
New East River	30 06 34.088	1049.6	263 45 00.5	83 45 57.5	Denham	3059.0	3.485583
1859	84 09 26.616	712.6	304 47 21.9	124 48 36.6	Palmetto Island	4860.3	3.686667
St. Marks L. H.	30 04 25.329	779.9	208 32 23.1	28 33 03.5	New East River	4513.4	3.654501
1859	84 10 47.158	1263.0	259 01 22.8	79 03 17.9	Palmetto Island	6263.1	3.796787
Port Leon	30 07 30.243	931.2	296 31 55.1	116 33 00.0	New East River	3869.7	3.587674
1855	84 11 35.931	961.8	347 04 43.7	167 05 08.1	St. Marks L. H.	5841.7	3.766538
West Bayou Point	30 06 37.180	1144.8	236 11 48.6	56 12 34.4	Port Leon	2937.4	3.467967
1855	84 13 07.115	190.5	317 16 48.2	137 17 58.4	St. Marks L. H.	5525.2	3.742349
			270 54 29.7	90 56 20.4	New East River	5904.1	3.771156
Walker	30 08 28.708	884.0	308 22 05.3	128 22 47.9	Port Leon	2899.9	3.462383
1855	84 13 00.868	23.2	2 47 17.8	182 47 14.7	West Bayou Point	3438.2	3.536337
St. Marks south base	30 08 32.132	989.4	342 38 50.7	162 39 01.9	Port Leon	1996.5	3.300274
1855	84 11 58.176	1557.0	27 32 24.3	207 31 49.7	West Bayou Point	3991.8	3.601167
			86 24 31.8	266 24 00.3	Walker	1681.2	3.225619
Fort St. Marks	30 09 00.871	26.8	308 53 07.4	128 53 28.0	St. Marks south base	1409.6	3.149091
1855	84 12 39.172	1048.4	9 35 48.3	189 35 34.4	West Bayou Point	4487.3	3.651989
			30 23 00.9	210 22 50.0	Walker	1148.0	3.059954
St. Marks north base	30 09 08.839	272.2	340 20 34.0	160 20 41.6	St. Marks south base	1200.22	3.079260
1855	84 12 13.261	354.9	70 31 03.2	250 30 50.2	Fort St. Marks	735.5	2.866606
Trot	29 29 39.905	1228.6	87 27 18.7	267 24 22.6	Charybdis	9643.9	3.984251
1874	83 21 50.249	1353.6	125 33 29.1	305 32 23.0	Bowlegs Point	4443.5	3.647721
			304 29 24.1	124 30 20.5	Scaffold	3748.4	3.573842
Number 1	29 27 30.308	933.2	169 21 03.4	349 20 40.8	Bowlegs Point	6688.8	3.825349
1876	83 23 18.580	500.7	210 48 23.9	30 49 07.3	Trot	4645.9	3.667072
			251 08 17.8	71 09 57.7	Scaffold	5779.7	3.761903
Gibbs	30 06 50.382	1551.3	243 06 03.5	63 06 48.9	Port Leon	2713.5	3.433537
1907	84 13 06.333	169.5	320 08 57.7	140 10 07.5	St. Marks L. H.	5817.0	3.764700
Four Mile	30 06 34.186	1052.6	351 34 47.0	171 34 57.8	St. Marks L. H.	4011.0	3.603250
1907	84 11 09.087	243.3	99 02 08.8	279 01 10.0	Gibbs	3178.3	3.502195
			157 23 55.8	337 23 42.3	Port Leon	1869.7	3.271776
Leon	30 07 43.369	1335.4	329 47 41.1	149 48 04.3	Four Mile	2464.9	3.391793
1907	84 11 55.405	1483.2	49 19 56.3	229 19 20.7	Gibbs	2503.4	3.398533
Pan	30 08 20.402	628.2	256 40 18.2	76 40 46.8	St. Marks south base	1567.0	3.195067
1907	84 12 55.147	1476.0	305 29 21.4	125 29 51.4	Leon	1964.0	3.293145
			319 01 56.6	139 02 49.7	Four Mile	4331.0	3.636587
			6 09 57.4	186 09 51.8	Gibbs	2788.0	3.445296
Fort St. Marks astronomic station	30 09 00.830	25.6	250 12 22.4	70 12 35.2	St. Marks north base	728.2	2.862244
1907	84 12 38.864	1040.1	309 03 27.7	129 03 48.1	St. Marks south base	1402.4	3.146872
			334 00 00.9	154 00 22.7	Leon	2653.7	3.423847
			19 17 43.1	199 17 34.9	Pan	1318.9	3.120219

## CEDAR KEYS TO ST MARKS RIVER—Continued

Station	Latitude and longitude	Seconds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Principal points—Contd</i>							
Stack 1907	30 09 22.645	697.2	341 06 57.4	161 07 07.4	St. Marks south base	1643.9	3.215866
	84 12 18.055	483.2	343 12 28.6	163 12 31.0	St. Marks north base	444.1	2.647432
			39 39 45.3	219 39 34.9	Fort St. Marks astro- nomic station	872.5	2.940770
Harrall 1907	30 09 26.943	829.6	331 53 32.2	151 53 33.5	Stack	150.0	2.176215
	84 12 20.697	553.8	340 21 24.2	160 21 27.9	St. Marks north base	591.9	2.772255
Long 1907	30 09 27.672	852.1	4 02 08.3	184 02 08.1	Stack	155.2	2.190862
	84 12 17.647	472.2	74 36 52.4	254 36 50.9	Harrall	84.6	1.927596
<i>Supplementary points</i>							
Mill 1907	30 09 25.819	795.0	30 06 23.9	210 06 22.8	Stack	113.0	2.053007
	84 12 15.937	426.5	105 12 08.4	285 12 05.9	Harrall	132.0	2.120507
			141 16 48.9	321 16 48.0	Long	73.1	1.864159
Tank 1907	30 09 16.669	513.3	343 42 12.7	163 42 20.2	St. Marks south base	1428.8	3.154964
	84 12 13.156	352.1	0 40 11.8	180 40 11.7	St. Marks north base	241.1	2.382221
			54 40 17.6	234 40 04.7	St. Marks astronomic station	843.3	2.925979
			147 28 09.9	327 28 06.1	Harrall	375.2	2.574314
			160 28 16.3	340 28 14.0	Long	359.5	2.555708
Aux 1907	30 08 33.637	1035.8	340 59 36.8	160 59 37.2	St. Marks south base	49.1	1.690726
	84 11 58.772	1573.0	356 40 02.3	176 40 04.0	Leon	1550.5	3.190463
			74 53 22.5	254 52 54.2	Pan	1562.9	3.193930
			127 58 15.2	307 57 55.1	Fort St. Marks astro- nomic station	1361.0	3.133862
St Marks magnetic azimuth station 1907	30 09 04.550	140.1	350 13 39.7	170 13 47.8	Leon	2536.5	3.404237
	84 12 11.489	307.4	40 40 58.1	220 40 36.2	Pan	1792.5	3.253466
			81 06 55.3	261 06 41.6	Fort St. Marks astro- nomic station	741.5	2.870106
			160 14 48.6	340 14 47.7	St. Marks north base	140.3	2.146896
St. Marks longitude station 1907	30 09 27.64	851.1	182 38	2 38	Long	0.87	9.939519
	84 12 17.65	472.3					

## ST. MARKS RIVER TO ST. ANDREWS SOUND

<i>Principal points</i>							
Shell Point 1859	30 03 26.181	806.1	229 27 53.3	49 30 02.1	West Bayou Point	9052.4	3.956765
	84 17 24.089	645.2	260 15 06.0	80 18 24.9	St. Marks L. H.	10786.6	4.032884
Bald Point 1859	29 56 54.027	1663.6	202 20 39.0	22 22 11.6	Shell Point	13066.3	4.115821
	84 20 29.389	788.1	228 16 18.8	48 21 10.0	St. Marks L. H.	20894.2	4.320027
Porters Island 1859	30 01 21.129	650.6	242 14 24.3	62 16 41.1	Shell Point	8272.3	3.917625
	84 21 57.364	1537.2	252 25 19.6	72 30 55.2	St. Marks L. H.	18828.9	4.274826
			343 59 38.4	164 00 22.4	Bald Point	8555.8	3.932261
Piccoline Bayou 1859	29 58 39.300	1210.1	200 03 17.6	20 03 51.5	Porters Island	5304.7	3.724664
	84 23 05.250	140.7	307 47 17.4	127 48 35.2	Bald Point	5288.8	3.723354
Chaires 1859	29 57 38.580	1187.9	174 49 15.5	354 49 12.4	Piccoline Bayou	1877.3	3.273529
	84 22 58.929	1580.1	288 52 34.4	108 53 49.1	Bald Point	4238.0	3.627164
Lansing 1859	29 57 52.937	1630.0	244 52 49.4	64 53 46.2	Piccoline Bayou	3363.8	3.526836
	84 24 58.861	1578.2	277 49 08.4	97 50 08.3	Chaires	3245.9	3.511333
Sopchoppy 1859	29 59 02.007	61.8	281 34 09.7	101 35 13.3	Piccoline Bayou	3483.7	3.542036
	84 25 12.557	336.6	305 37 57.4	125 39 04.2	Chaires	4408.3	3.644273
			350 12 12.1	170 12 18.9	Lansing	2158.2	3.334095
Lansing 2 1873	29 57 52.934	1629.9	244 52 44.4	64 53 41.2	Piccoline Bayou	3363.9	3.526843
	84 24 58.861	1578.2	277 49 02.0	97 50 01.9	Chaires	3245.9	3.511334
Sopchoppy 2 1873	29 59 02.016	62.1	281 34 25.0	101 35 28.6	Piccoline Bayou	3483.7	3.542046
	84 25 12.558	336.7	305 38 06.8	125 39 13.6	Chaires	4408.5	3.644291
			350 12 17.0	170 12 23.8	Lansing 2	2158.6	3.334168
Robinson 1859	29 58 05.831	179.5	236 59 45.8	57 00 35.5	Sopchoppy	3176.2	3.501907
	84 26 51.923	1392.1	277 27 12.9	97 28 09.4	Lansing	3057.2	3.485329
Houston 1859	29 57 19.343	595.6	127 19 00.6	307 18 25.6	Robinson	2361.5	3.373179
	84 25 41.875	1122.9	193 57 40.8	13 57 55.4	Sopchoppy	3257.4	3.512872
Ellis 1859	29 56 39.063	1202.8	163 05 35.0	343 05 19.9	Robinson	2792.4	3.445978
	84 26 21.634	580.2	220 40 49.2	40 41 09.1	Houston	1835.5	3.213662
Forbes 1859	29 56 08.836	272.1	123 56 42.9	303 56 17.2	Ellis	1666.9	3.221909
	84 25 30.070	806.5	171 42 15.3	351 42 09.4	Houston	2193.9	3.341226
Bailey 1858	29 55 46.151	1421.0	196 07 06.7	16 07 15.5	Ellis	1695.9	3.229395
	84 26 39.191	1051.1	249 20 59.0	69 21 33.5	Forbes	1981.1	3.295899



## ST. MARKS RIVER TO ST. ANDREWS SOUND—Continued

Station	Latitude and longitude	Sec- onds in meters	Azimuth	Back azimuth	To station	Distance	Loga- rithm
<i>Principal points—Contd</i>	<i>° ' "</i>		<i>° ' "</i>	<i>° ' "</i>		<i>Meters</i>	
Franklin 1858	29 55 20.356 84 24 44.998	626.8 1207.0	104 32 43.0 141 00 03.1 175 28 34.4 213 44 58.1	284 31 46.0 320 59 40.6 355 28 27.4 33 45 51.0	Bailey Forbes Lansing 2 Chaires	3164.2 1920.9 4712.7 5119.2	3.500265 3.283497 3.673271 3.709198
Peninsula Point 1858	29 54 23.875 84 25 29.933	735.1 803.1	143 45 03.2 214 43 24.4	323 44 28.7 34 43 46.8	Bailey Franklin	3141.5 2116.0	3.497141 3.325514
Turkey Point 1858	29 54 40.291 84 29 26.972	1240.6 723.5	245 43 57.2 274 31 42.2	65 45 20.9 94 33 40.4	Bailey Peninsula Point	4936.3 6379.0	3.693398 3.804754
Southwest Cape 1858	29 53 32.463 84 22 38.867	999.6 1042.9	100 49 39.2 109 02 30.5 122 34 28.2 134 28 54.7	280 46 15.8 289 01 05.2 302 32 28.4 314 27 51.9	Turkey Point Peninsula Point Bailey Franklin	11146.3 4855.0 7649.1 4742.0	4.047132 3.686185 3.883609 3.675960
Dog Island east 1857	29 49 22.869 84 34 53.017	704.1 1423.5	221 48 56.4 248 38 34.6	41 51 38.8 68 44 40.1	Turkey Point Southwest Cape	13118.4 21150.5	4.117881 4.325321
St. James Island 1858	29 53 10.147 84 34 55.915	312.5 1500.4	252 31 07.0 359 21 46.9	72 33 51.0 179 21 48.3	Turkey Point Dog Island east	9251.5 6998.5	3.966214 3.845002
Palmetto Point 1858	29 51 09.793 84 38 11.922	301.5 320.0	234 49 21.0 301 38 32.5	54 50 58.6 121 40 11.5	St. James Island Dog Island east	6434.5 6273.1	3.808518 3.797482
Dog Island A. M. 1858	29 47 00.248 84 39 57.194	7.6 1536.3	200 11 25.6 215 21 36.6 241 43 02.2	20 12 17.9 35 24 06.6 61 45 33.4	Palmetto Point St. James Island Dog Island east	8187.0 13969.2 9274.2	3.913126 4.145171 3.967277
Crooked River 1856	29 49 55.734 84 40 40.748	1716.1 1094.0	276 09 43.3 347 46 59.6	96 12 36.2 167 47 21.2	Dog Island east Dog Island A. M.	9390.7 5528.4	3.972699 3.742599
Royal Bluff 1856	29 47 33.553 84 45 00.439	1033.1 11.8	237 51 43.0 258 17 55.6 277 09 17.9	57 53 52.1 78 22 57.6 97 11 48.5	Crooked River Dog Island east Dog Island A. M.	8233.6 16655.2 8209.2	3.915592 4.221550 3.914300
St. George Island east base 1856	29 44 56.460 84 42 33.962	1738.4 912.6	140 52 52.6 198 15 16.3 227 50 39.0	320 51 39.9 18 16 12.5 47 51 56.8	Royal Bluff Crooked River Dog Island A. M.	6235.3 9703.5 5680.2	3.794859 3.986927 3.754363
St. George Island west base 1856	29 43 51.507 84 43 56.407	1585.9 1515.9	165 52 50.7 227 55 17.0	345 52 18.9 47 55 58.5	Royal Bluff St. George Island east base	7049.9 2984.6	3.848185 3.474884
Marsh Point 1856	29 46 04.585 84 47 52.530	141.2 1411.3	239 20 13.0 283 44 54.1 302 50 22.1	59 21 38.5 103 47 32.2 122 52 19.3	Royal Bluff St. George Island east base St. George Island west base	5373.3 8812.2 7552.6	3.730238 3.945085 3.878095
Gap Island 1856	29 42 04.927 84 45 02.776	151.7 74.6	182 08 11.1 243 37 18.5	2 08 16.2 63 39 20.6	Marsh Point St. George Island west base	7384.2 7390.5	3.868303 3.868673
Cat Point 1856	29 43 21.075 84 53 15.750	648.9 423.3	239 52 41.0 285 33 05.6	59 55 21.4 105 35 40.7	Marsh Point Gap Island	10038.8 8733.1	4.001680 3.941170
Bulkhead Point 1856	29 40 14.417 84 51 29.983	443.9 806.2	153 41 01.3 238 34 13.1	333 40 08.9 58 35 55.7	Cat Point Gap Island	6412.1 6527.9	3.807000 3.814776
Cedar Point 1856	29 38 57.310 84 55 12.176	1764.6 327.5	201 04 14.4 248 18 59.6	21 05 12.0 68 20 49.5	Cat Point Bulkhead Point	8703.7 6429.8	3.939702 3.808199
Apalachicola 1856	29 43 13.066 84 59 07.560	402.3 203.2	268 28 54.8 294 03 37.4 321 11 45.1	88 31 49.2 114 07 24.2 141 13 41.7	Cat Point Bulkhead Point Cedar Point	9458.8 13475.2 10102.6	3.975835 4.129534 4.004433
Cape St. George L. H. 1857	29 35 15.109 85 02 49.365	465.2 1328.6	202 03 02.9 240 53 08.9	22 04 52.6 60 56 54.8	Apalachicola Cedar Point	15879.3 14074.9	4.200830 4.148446
Green Point 2 1856	29 42 23.763 85 02 07.340	731.7 197.3	299 37 47.7 4 53 52.7	119 41 13.2 184 53 31.9	Cedar Point Cape St. George L. H.	12846.1 13246.4	4.108770 4.122097
Shell Bank 1856	29 42 01.094 85 10 32.618	33.7 876.9	286 57 15.5 315 03 34.2	87 05 35.0 135 07 23.3	Green Point 2 Cape St. George L. H.	13600.6 17649.6	4.133557 4.246736
Cape San Blas L. H. (old tower) 1860	29 39 45.952 85 21 46.824	1414.8 1259.3	257 01 33.5 285 09 56.3	77 07 07.4 105 19 18.7	Shell Bank Cape St. George L. H.	18599.1 31716.3	4.269492 4.501282
Dead Oak Point 1860	29 41 06.002 85 16 46.286	184.8 1244.5	260 23 24.0 295 34 43.2 73 03 34.3	80 26 29.3 115 41 37.1 253 01 05.5	Shell Bank Cape St. George L. H. Cape San Blas L. H. (old tower).	10188.1 24970.8 8448.8	4.008092 4.397433 3.926795
Blacks Island 1860	29 43 37.364 85 19 47.773	1150.4 1284.0	313 40 40.2 24 11 51.6	133 42 10.0 204 10 52.6	Dead Oak Point Cape San Blas L. H. (old tower)	6746.8 7811.0	3.829097 3.892704
Eagle Point 1861	29 45 16.890 85 23 29.215	520.0 785.0	297 13 56.3 344 52 39.3	117 15 46.1 164 53 30.0	Blacks Island Cape San Blas L. H. (old tower)	6693.2 10554.7	3.825636 4.023445

## ST. MARKS RIVER TO ST. ANDREWS SOUND—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Loga-rithm
<i>Principal points—Contd</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
St. Joseph 1868	29 47 24.559 85 18 08.072	756.2 216.8	20 57 34.9 22 37 10.7	200 56 45.4 202 35 22.2	Blacks Island Cape San Blas L. H. (old tower) Eagle Point	7490.7 15295.4 9480.3	3.874520 4.184562 3.976823
Powell 1868	29 48 07.573 85 24 39.757	233.2 1067.7	277 08 55.6 340 10 03.6	97 12 10.2 160 10 38.6	St. Joseph Eagle Point	10602.5 5586.5	4.025408 3.747140
San Carlos 1868	29 51 08.074 85 20 16.292	248.6 437.3	333 24 53.8 25 36 51.6 51 51 43.3	153 25 57.6 205 35 15.7 231 49 32.3	St. Joseph Eagle Point Powell	7695.2 11990.1 8995.8	3.886218 4.078824 3.954042
Consort 1860	29 54 55.236 85 22 40.280	1700.8 1080.5	331 04 27.1 14 20 22.8	151 05 38.8 194 19 23.3	San Carlos Powell	7990.7 12955.3	3.902583 4.112449
St. Andrews Point 1869	29 57 46.960 85 25 55.980	1445.9 1501.0	297 39 48.4 338 54 20.5	117 42 55.9 158 56 28.1	Consort Powell	11378.9 19118.8	4.056100 4.281460
Pine Point 1869	29 59 24.384 85 32 07.473	750.8 200.3	300 17 08.5 330 00 32.5	120 18 44.2 150 04 15.6	St. Andrews Point Powell	5945.9 24053.7	3.774214 4.381182
Franklin Point 2 1869	30 00 24.302 85 31 37.257	748.3 998.5	318 14 38.7 23 42 09.9	138 15 59.3 203 41 54.3	St. Andrews Point Pine Point	6493.2 2014.9	3.812458 3.304247
Nigel 1869	30 01 53.229 85 35 21.323	1639.0 571.3	294 29 56.3 311 24 19.7	114 31 48.4 131 25 56.7	Franklin Point 2 Pine Point	6599.2 6927.7	3.819492 3.840591
Spring Hill 2 1869	30 03 10.413 85 35 09.759	320.6 261.4	311 55 07.0 324 55 28.6 7 25 42.1	131 56 53.3 144 56 59.9 187 25 36.3	Franklin Point 2 Pine Point Nigel	7653.8 8502.7 2396.7	3.883877 3.929599 3.379615
Hurricane Point 1869	30 04 33.881 85 39 34.274	1043.3 917.9	133 35 53.6 289 55 10.4 306 06 46.1	313 34 19.8 109 57 22.9 126 08 52.8	Laguna Spring Hill 2 Nigel	6911.1 7536.8 8389.5	3.839545 3.877185 3.923735
Cypress Point 1869	30 06 20.934 85 40 18.611	644.6 498.3	305 19 28.1 315 58 15.5 340 11 21.4 111 02 40.0	125 22 02.9 136 00 44.4 160 11 43.6 291 01 28.5	Spring Hill 2 Nigel Hurricane Point Laguna	10140.5 11460.7 3503.7 4090.9	4.006061 4.059213 3.544522 3.611816
Laurel 1909	29 43 13.076 84 59 07.528	402.6 202.3	321 12 02.5 22 05 01.3	141 13 59.0 202 03 11.5	Cedar Point Cape St. George L. H.	10102.3 15879.8	4.004420 4.200846
West Pass 2 1909	29 37 32.900 85 05 44.694	1013.0 1202.4	225 31 47.9 311 57 08.5	45 35 04.5 131 58 35.1	Laurel Cape St. George L. H.	14958.6 6344.7	4.174890 3.802408
West Pass 1860	29 37 31.979 85 05 45.968	984.6 1236.6	230 26 46.1 261 11 44.3 311 33 18.6	50 26 46.7 81 16 57.7 131 34 45.9	West Pass 2 Cedar Point Cape St. George L. H.	44.5 17249.8 6351.4	1.648360 4.236783 3.802868
St. Vincent Point 2 1910	29 40 23.741 85 04 31.170	731.0 838.1	343 54 57.4 20 36 30.0	163 55 47.7 200 35 53.6	Cape St. George L. H. West Pass 2	9889.4 5619.5	3.995168 3.749701
New Inlet 2 1910	29 35 57.667 85 00 00.030	1775.5 0.8	73 58 09.3 107 34 11.6 138 20 24.3	253 56 45.7 287 31 21.3 318 18 10.3	Cape St. George L. H. West Pass 2 St. Vincent Point 2	4741.6 9725.9 10968.5	3.675925 3.987932 4.040148
Cat Point 2 1909	29 43 20.788 84 53 17.276	640.0 464.3	20 51 17.3 45 51 10.6 88 34 45.1	200 50 20.4 225 46 36.6 268 31 51.5	Cedar Point Cape St. George L. H. Laurel	8680.7 21455.8 9416.7	3.938555 4.331544 3.973897
Bulkhead 2 1909	29 40 14.063 84 51 27.506	433.0 739.6	68 39 13.7 114 03 11.6 152 50 12.3	248 37 22.5 293 59 23.6 332 49 17.9	Cedar Point Laurel Cat Point 2	6487.8 13539.8 6462.3	3.812097 4.131611 3.810390
Yent 1909	29 45 27.381 84 49 25.197	843.1 677.0	18 49 35.3 58 00 36.5	198 48 34.7 237 58 41.4	Bulkhead 2 Cat Point 2	10191.8 7354.3	4.008251 3.866540
Gap Island 2 1909	29 42 05.759 84 47 55.258	177.3 1485.4	58 56 21.0 104 57 56.8 158 43 57.2	238 54 35.9 284 55 17.2 338 43 12.6	Bulkhead 2 Cat Point 2 Yent	6662.7 8958.6 6661.9	3.823652 3.952240 3.823598
Marsh Point 2 1909	29 46 06.635 84 47 53.653	204.3 1441.4	0 20 00.1 63 50 08.1	180 19 59.3 243 49 22.7	Gap Island 2 Yent	7416.7 2740.3	3.870210 3.437804
Spartan 1909	29 43 01.247 84 45 36.582	38.4 983.2	65 23 10.6 126 14 04.8 147 10 35.5	245 22 01.9 306 12 11.4 327 09 27.5	Gap Island 2 Yent Marsh Point 2	4100.5 7615.0 6793.3	3.612837 3.881668 3.832080
Royal Bluff 2 1909	29 47 34.226 84 45 00.512	1053.8 13.7	6 34 47.0 59 54 09.1	186 34 29.1 239 52 43.1	Spartan Marsh Point 2	8460.7 5376.1	3.927408 3.730471
St. George Island east 1909	29 45 32.261 84 42 16.865	963.3 453.1	49 06 31.8 96 41 41.7 130 31 03.5	229 04 52.7 276 38 54.5 310 29 42.2	Spartan Marsh Point 2 Royal Bluff 2	7100.9 9109.7 5781.6	3.851315 3.959503 3.762046
Crooked River 2 1909	29 49 56.442 84 40 42.962	1737.9 1153.4	17 13 55.8 57 40 38.1	197 13 09.1 237 38 30.0	St. George Island east Royal Bluff 2	8516.2 8185.6	3.930245 3.913049
Dog Island west 1909	29 47 05.213 84 40 08.336	160.5 223.9	50 21 10.5 96 30 52.0 170 00 51.3	230 20 06.7 276 28 26.8 349 59 44.1	St. George Island east Royal Bluff 2 Crooked River 2	4484.7 7898.2 5353.6	3.651730 3.897526 3.728642



## ST. MARKS RIVER TO ST. ANDREWS SOUND—Continued

Station	Latitude and longitude	Sec- onds in meters	Azimuth	Back azimuth	To station	Distance	Loga- rithm
<i>Principal points—Contd</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
Old outer beacon, Carrabelle 1909	29 50 06.842 84 39 20.140	210.7 540.6	13 02 01.0 81 48 38.3	193 01 37.0 261 47 57.1	Dog Island west Crooked River 2	5740.2 2246.4	3.758928 3.351495
Dog Island east 2 1909	29 49 22.225 84 34 53.584	684.3 1438.7	63 29 53.9 96 25 56.7 100 53 04.7	243 27 17.4 276 23 02.9 280 50 52.1	Dog Island west Crooked River 2 Old outer beacon, Car- rabelle	9446.9 9439.2 7287.2	3.975289 3.974937 3.862560
Palmetto 2 1909	29 51 10.972 84 38 11.176	337.8 299.9	302 14 51.4 22 34 56.1 43 09 29.8	122 16 29.7 202 33 57.8 223 08 55.5	Dog Island east 2 Dog Island west Old outer beacon, Car- rabelle	6272.9 8194.9 2706.7	3.797460 3.913542 3.432440
St. James Island 2 1909	29 53 17.641 84 34 33.145	543.2 889.4	4 19 46.4 56 19 45.5	184 19 36.2 236 17 56.9	Dog Island east 2 Palmetto 2	7269.3 7032.0	3.861494 3.847081
Lands end 1910	30 05 25.677 85 40 14.903	790.6 399.1	119 37 03.1 128 15 52.8 161 08 50.3	299 36 18.9 308 14 43.3 341 08 35.4	Spanish Shanty Laguna 2 Middle	2713.7 4720.3 2450.7	3.433554 3.673971 3.389284
Weiley 1910	30 06 19.316 85 40 13.604	594.7 364.2	1 12 22.8 82 36 32.8 108 46 26.7	181 12 22.2 262 35 48.0 288 45 16.7	Lands end Spanish Shanty Laguna 2	1652.0 2413.9 3951.2	3.218011 3.382725 3.596728
Hurricane West 1910	30 04 44.264 85 39 17.513	1363.0 469.0	129 41 14.0 152 50 16.6	309 40 45.2 332 49 48.5	Lands end Weiley	1997.0 3289.7	3.300382 3.517158
St. Andrews Bay rear range light 1910	30 05 29.999 85 38 51.591	923.7 1381.5	26 14 30.0 86 35 31.3 124 40 13.8	206 14 17.0 266 34 49.5 304 39 32.6	Hurricane West Lands end Weiley	1570.1 2234.9 2669.9	3.195914 3.349253 3.426492
Hurricane East 1910	30 04 09.343 85 38 12.054	287.8 322.9	121 31 34.7 156 55 03.9 159 24 51.9	301 31 01.9 336 54 44.1 339 24 37.6	Hurricane West St. Andrews Bay rear range light St. Andrews Bay front range light	2056.6 2699.5 2173.3	3.313153 3.431281 3.337127
Sand Bluff 1910	3 04 56.049 85 38 01.163	1725.7 31.1	11 27 55.7 79 56 28.0 127 44 50.6	191 27 50.2 259 55 49.7 307 44 25.3	Hurricane East Hurricane West St. Andrews Bay rear range light	1467.4 2076.6 1707.7	3.166554 3.317362 3.232421
Celestine 1910	30 03 32.327 85 36 49.548	995.5 1327.2	117 17 18.1 143 21 14.6	297 16 36.8 323 20 38.9	Hurricane East Sand Bluff	2486.5 3213.2	3.395592 3.506938
Bayou Bluff 1910	30 04 12.021 85 36 36.880	370.2 987.8	15 30 59.3 88 09 12.7 120 59 39.1	195 30 52.9 268 08 25.0 300 58 56.9	Celestine Hurricane East Sand Bluff	1268.5 2550.4 2633.1	3.103280 3.406612 3.420461
Spring 1910	30 03 21.017 85 35 15.856	647.2 424.7	97 54 22.9 107 30 42.4 125 53 48.7	277 53 36.0 287 29 14.1 305 53 08.1	Celestine Hurricane East Bayou Bluff	2533.7 4948.5 2678.9	3.403763 3.694476 3.427952
Anchor 1910	30 01 34.043 85 34 21.089	1048.3 565.1	132 29 28.7 155 59 34.5	312 28 14.4 335 59 07.1	Celestine Spring	5393.0 3605.9	3.731829 3.557015
Astral 1910	30 00 43.692 85 33 38.334	1345.3 1027.4	130 49 46.4 143 32 21.3 151 39 54.4	310 47 29.4 323 31 59.9 331 39 05.6	Hurricane East Anchor Spring	9688.9 1927.8 5504.0	3.986274 3.285053 3.740679
Areola 1910	30 01 51.784 85 33 08.404	1594.6 225.2	20 56 08.3 74 20 12.4 117 36 17.3 128 49 54.9	200 55 53.3 254 19 36.0 297 34 26.6 308 48 51.1	Astral Anchor Celestine Spring	2244.8 2022.7 6684.6 4382.7	3.351180 3.305938 3.825075 3.641745
Abbot 1910	30 00 57.107 85 33 04.879	1758.4 130.7	119 07 07.3 176 47 19.0	299 06 29.2 356 47 17.3	Anchor Areola	2337.5 1686.2	3.368754 3.226913
Agog 1910	30 00 01.575 85 32 51.006	48.5 1367.1	135 38 13.3 167 44 01.6 172 10 41.3	315 37 49.4 347 43 54.7 352 10 32.5	Astral Abbot Areola	1814.0 1749.9 3425.3	3.258644 3.243002 3.534704
Arrow 1910	30 01 06.015 85 32 18.941	185.3 507.6	23 25 09.6 77 26 30.7 136 45 35.6	203 24 53.6 257 26 07.7 316 45 10.9	Agog Abbot Areola	2162.3 1261.2 1934.6	3.334914 3.100792 3.286596
Atom 1910	29 59 19.378 85 31 54.127	596.6 1450.8	130 26 35.5 168 33 07.9	310 26 07.1 348 32 55.5	Agog Arrow	2003.1 3350.2	3.301705 3.525066
Asp 1910	30 00 25.927 85 31 36.591	798.3 980.6	12 55 12.3 69 24 02.9 137 24 24.2	192 55 03.5 249 23 25.7 317 24 03.0	Atom Agog Arrow	2102.3 2130.7 1676.8	3.322703 3.328523 3.224485
Acorn 1910	29 59 33.948 85 30 19.829	1045.3 531.5	79 56 31.3 127 53 08.1	259 55 44.2 307 52 29.7	Atom Asp	2567.1 2606.6	3.409450 3.416077
Apex 1910	29 57 58.527 85 29 34.984	1802.2 938.0	123 43 42.6 144 19 17.2 157 45 00.5	303 42 33.1 324 18 16.4 337 44 38.1	Atom Asp Acorn	4484.6 5588.0 3174.6	3.651727 3.747253 3.501685
St. Joseph Point 2 1910	29 51 56.716 85 23 42.732	1746.3 1146.9	139 43 14.0 196 56 58.7	319 40 18.3 16 57 29.8	Apex Consort	14608.0 5746.5	4.164591 3.759403

## ST. MARKS RIVER TO ST. ANDREWS SOUND—Continued

Station	Latitude and longitude	Sec onds in meters	Azimuth	Back azimuth	To station	Distance	Loga- rithm
<i>Principal points—Contd</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
San Carlos 2 1910	29 50 59.716 85 20 12.798	1838.7 343.5	107 18 53.7 151 23 16.0	287 17 09.2 331 22 02.5	St. Joseph Point 2 Consort	5901.7 8261.4	3.770979 3.917054
Pompano 1910	29 49 00.102 85 24 26.311	3.1 706.5	192 08 15.8 241 33 48.1 194 34 47.3	12 08 37.5 61 35 54.2 14 35 40.1	St. Joseph Point San Carlos 2 Consort	5562.4 7738.6 11299.0	3.745265 3.888665 4.053040
St. Joseph 2 1910	29 47 24.601 85 18 07.029	757.5 188.8	106 07 45.2 152 59 38.5	286 04 36.7 332 58 36.0	Pompano San Carlos 2	10601.6 7434.7	4.025370 3.871262
Eagle Point 2 1910	29 45 11.727 85 23 30.617	361.1 822.6	167 59 36.9 206 21 33.5 244 46 25.1	347 59 09.2 26 23 11.9 64 49 05.8	Pompano San Carlos 2 St. Joseph 2	7189.1 11959.4 9607.3	3.856673 4.077709 3.982603
Blacks Island A. M. 1910	29 43 36.680 85 19 46.991	1129.4 1262.9	115 58 52.9 200 56 05.6	295 57 01.9 20 56 55.2	Eagle Point 2 St. Joseph 2	6684.0 7514.1	3.825035 3.875875
Cape San Blas L. H. 1910	29 40 00.603 85 21 33.447	18.6 899.5	161 48 30.3 202 04 22.2 203 16 07.2	341 47 32.2 22 06 04.6 23 17 00.0	Eagle Point 2 St. Joseph 2 Blacks Island A. M.	10063.9 14753.4 7242.4	4.003630 4.168891 3.859884
<i>Supplementary points</i>							
Lanark, flag on wharf house 1909	29 52 40.114 84 35 45.365	1235.1 1217.4	239 11 22.2 347 08 46.3 54 57 53.7	59 11 58.2 167 09 12.1 234 56 41.1	St. James Island 2 Dog Island east 2 Palmetto 2	2256.3 6249.6 4779.9	3.353391 3.795854 3.679422
Lanark, bathhouse wharf on reef, north end <sup>1</sup> 1909	29 52 24.43 84 35 09.20	752.2 246.9	65 09 52 210 33 27	245 08 22 30 33 46	Palmetto 2 St. James Island 2	5382.4 1902.8	3.730973 3.279395
Lanark, bathhouse wharf on reef, south end <sup>1</sup> 1909	29 52 23.62 84 35 08.62	727.3 231.3	65 28 28 209 46 53	245 26 57 29 47 10	Palmetto 2 St. James Island 2	5386.0 1916.6	3.731264 3.282534
Carabelle: C o l o r e d    Methodist Church 1909	29 50 55.066 84 39 30.115	1695.5 808.4	201 02 25.0 8 15 13.3 47 17 49.2 55 08 36.3	111 04 42.6 188 14 54.3 227 17 13.0 235 05 52.0	Dog Island east 2 Dog Island west Crooked River 2 Royal Bluff 2	7955.2 7151.3 2661.3 10813.9	3.900651 3.854383 3.425092 4.033981
Covington's house west chimney 1909	29 50 47.662 84 39 28.567	1467.5 766.8	289 35 38.4 8 51 51.8 51 42 29.1 56 16 13.8	109 37 55.2 188 51 32.0 231 41 52.1 236 13 28.7	Dog Island east 2 Dog Island west Crooked River 2 Royal Bluff 2	7837.1 6932.0 2544.8 10719.8	3.894153 3.840859 3.405647 4.030185
Weather signal 1909	29 50 55.450 84 39 47.874	1707.3 1285.1	289 56 48.4 4 25 59.5 39 08 48.3	109 59 14.8 184 25 49.3 219 08 20.9	Dog Island east 2 Dog Island west Crooked River 2	8406.1 7110.4 2342.7	3.924594 3.851891 3.369711
Carrabelle River Bar rear range light 1909	29 50 39.938 84 40 05.744	1229.7 154.2	285 54 48.8 0 36 12.2 36 43 35.5	105 57 24.1 180 36 10.9 216 43 17.0	Dog Island east 2 Dog Island west Crooked River 2	8715.4 6611.8 1670.9	3.940289 3.820321 3.222952
Carrabelle River Bar front range light 1910	29 50 27.012 84 39 54.846	831.7 1472.3	335 55 37.4 3 20 14.6 53 55 22.7	155 55 41.6 183 20 07.8 233 54 58.8	Timber Island U. S. E. station D Dog Island west Crooked River 2	550.0 6224.0 1598.3	2.740344 3.794069 3.203049
Timber Island U. S. E. sta- tion D 1910	29 50 10.703 84 39 46.490	329.5 1248.1	5 51 57.8 73 51 04.1 74 29 16.4	185 51 46.9 253 50 36.0 254 28 08.4	Dog Island west Crooked River 2 Crooked River rear range L. H.	5741.3 1578.4 3809.0	3.759013 3.198213 3.580806
Rear range light, new white 1910	29 50 02.132 84 39 14.095	65.6 378.1	14 58 25.2 85 48 21.7 106 52 55.4	194 57 58.2 265 47 37.5 286 52 39.3	Dog Island west Crooked River 2 Timber Island U. S. E. station D	5638.8 2392.2 908.9	3.751184 3.378804 2.958493
Front range light, new red 1910	29 49 47.145 84 39 18.831	1451.6 505.6	14 55 58.0 97 13 43.0 134 19 49.4	194 55 34.2 277 13 01.1 314 19 35.6	Dog Island west Crooked River 2 Timber Island U. S. E. station D	5160.1 2276.8 1038.0	3.712660 3.357319 3.016218
Crooked River rear range L. H. 1909	29 49 37.599 84 42 03.190	1157.7 85.6	254 55 10.3 272 19 13.2 326 40 22.3 2 47 03.6	74 55 50.2 92 22 46.9 146 41 19.4 182 46 56.8	Crooked River 2 Dog Island east 2 Dog Island west St. George Island east	2230.7 11544.3 5615.0 7562.9	3.348449 4.062368 3.749348 3.878691
Crooked River front range light 1910	29 49 31.830 84 41 59.898	980.0 1608.3	249 50 51.6 251 30 43.8 326 25 20.6	69 51 29.9 71 31 50.2 146 26 16.1	Crooked River 2 Timber Island U. S. E. station D Dog Island west	2200.2 3776.4 5418.0	3.342464 3.577074 3.733842
Six-foot Spot light 1909	29 43 07.791 84 48 17.116	239.9 460.0	43 45 04.0 92 51 38.0 156 56 49.2 186 31 48.1 272 39 44.6 342 53 58.0	223 43 29.7 272 49 09.2 336 56 15.4 6 31 59.7 92 41 04.2 162 54 08.8	Bulkhead 2 Cat Point 2 Yent Marsh Point 2 Spartan Gap Island 2	7403.4 8077.3 4671.2 5542.6 4319.5 1998.3	3.869431 3.907267 3.669426 3.743713 3.635434 3.300655

<sup>1</sup> No check on this position.



## ST. MARKS RIVER TO ST. ANDREWS SOUND—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Supplementary points—Continued</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
Porter Bar light 1909	29 41 56.810 84 49 12.522	1749.2 336.6	48 55 52.9 111 28 22.4 176 59 35.5 251 06 52.8 262 26 17.6	228 54 46.1 291 26 21.1 356 59 29.2 71 08 39.8 82 26 55.9	Bulkhead 2 Cat Point 2 Yent Spartan Gap Island 2	4814.5 7068.8 6492.4 6134.3 2095.2	3.682553 3.849344 3.812407 3.787762 3.321233
Bulkhead Cut rear range light 1909	29 42 50.691 84 54 16.410	1560.8 441.1	316 42 40.1 11 47 24.7 95 03 14.4 239 45 05.8	136 44 03.8 191 46 57.1 275 00 50.0 59 45 35.1	Bulkhead 2 Cedar Point Laurel Cat Point 2	6623.9 7340.5 7855.0 1839.8	3.821117 3.865726 3.895144 3.264772
Bulkhead Cut front range light 1909	29 42 37.563 84 53 40.686	1156.6 1093.6	320 58 11.7 19 56 39.3 97 07 03.1 205 18 07.4	140 59 17.7 199 55 54.0 277 04 21.0 25 18 19.0	Bulkhead 2 Cedar Point Laurel Cat Point 2	5687.0 7213.9 8852.8 1472.2	3.754883 3.858170 3.947080 3.167952
St. Marks River east 1910	29 44 49.775 84 56 44.787	1532.6 1203.5	296 09 07.4 26 42 40.4 52 11 32.2	116 10 50.3 206 41 48.7 232 10 21.4	Cat Point 2 Apalachicola jetty light Laurel	6213.3 6231.0 4855.8	3.793319 3.794558 3.686265
Apalachicola: Rear range light 1910	29 44 03.047 84 58 56.555	93.8 1519.8	247 52 39.3 278 05 52.6 349 48 53.2	67 53 44.7 98 08 40.8 169 49 06.8	St. Marks River east Cat Point 2 Apalachicola jetty light	3822.0 9210.5 4193.7	3.582289 3.964283 3.622600
Front range light 1910	29 43 33.131 84 58 50.682	1020.1 1362.1	170 16 37.4 235 05 39.8 272 24 20.4 349 40 59.6 36 14 59.8	350 16 34.5 55 06 42.3 92 27 05.8 169 41 10.4 216 14 51.5	Apalachicola rear range light St. Marks River east Cat Point 2 Apalachicola jetty light Laurel	934.5 4124.9 8968.7 3259.2 765.7	2.970596 3.615413 3.952731 3.513114 2.884057
Jetty, north end pole 1910	29 42 45.214 84 58 39.328	1392.1 1057.1	138 32 26.9 168 18 53.6 169 04 00.0 218 44 36.9	318 32 12.9 348 18 47.9 349 03 51.4 38 45 33.7	Laurel Apalachicola front range light Apalachicola rear range light St. Marks River east	1144.7 1506.6 2440.8 4917.8	3.058707 3.178000 3.387533 3.691771
Jetty light 1909	29 41 48.989 84 58 28.970	1508.4 778.8	284 26 01.1 314 57 18.0 30 01 34.5 158 11 07.7	104 29 29.8 134 58 55.3 209 59 25.6 338 10 48.5	Bulkhead 2 Cedar Point Cape St. George L. H. Laurel	11702.7 7479.5 14004.6 2788.8	4.068286 3.873874 4.146272 3.445416
Jetty, south end 1909	29 41 38.213 84 58 26.628	1176.6 715.8	313 26 29.1 30 56 43.7 159 22 34.4	133 28 05.3 210 54 33.7 339 22 14.1	Cedar Point Cape St. George L. H. Laurel	7203.1 13750.7 3120.9	3.857518 4.138324 3.494276
Colored Baptist Church spire 1909	29 43 28.091 84 59 15.890	864.9 427.0	205 46 09.7 238 12 59.4 271 18 42.5	25 46 19.3 58 14 14.4 91 21 40.4	Apalachicola rear range light St. Marks River east Cat Point 2	1195.2 4776.4 9640.8	3.077427 3.679101 3.984115
White Baptist Church spire 1909	29 43 21.280 84 59 14.476	655.2 389.1	235 52 39.8 270 03 57.3 294 37 52.7	55 53 54.0 90 06 54.4 114 41 44.1	St. Marks River east Cat Point 2 Bulkhead 2	4858.6 9600.3 13813.9	3.686509 3.982285 4.140317
Armory flagpole 1909	29 43 34.751 84 59 05.045	1070.0 135.6	194 40 27.1 272 36 35.1 296 38 31.6 323 44 43.8	14 40 31.3 92 39 27.5 116 42 18.3 143 46 39.1	Apalachicola rear range light Cat Point 2 Bulkhead 2 Cedar Point	900.6 9356.5 13764.9 10591.0	2.954533 3.971115 4.138772 4.024939
Episcopal Church spire 1909	29 43 31.828 84 59 09.985	980.0 268.4	200 34 44.0 272 01 45.8 322 52 41.4	20 34 50.7 92 04 40.7 142 54 39.2	Apalachicola rear range light Cat Point 2 Cedar Point	1026.8 9485.5 10598.2	3.011470 3.977062 4.025232
Convent round tower 1902	29 43 18.113 84 59 05.587	557.7 150.2	321 58 33.2 22 02 54.0 45 19 05.9	142 00 28.8 202 01 03.3 225 15 47.7	Cedar Point Cape St. George L. H. West Pass	10191.4 16043.2 15148.9	4.008234 4.205290 4.180380
Catholic Church spire 1902	29 43 27.482 84 59 04.530	846.2 121.8	295 49 43.4 323 04 41.3 21 45 39.2	115 53 29.8 143 06 36.3 201 43 47.9	Bulkhead 2 Cedar Point Cape St. George L. H.	13653.5 10403.1 16321.4	4.135244 4.017161 4.212758
Water tower 1909	29 43 30.051 84 59 08.953	925.3 240.6	271 42 15.1 235 54 31.2 322 49 08.6 21 16 14.0 44 06 09.5	91 45 09.5 115 58 19.9 142 51 05.9 201 14 25.0 224 01 53.6	Cat Point 2 Bulkhead 2 Cedar Point Cape St. George L. H. West Pass 2	9456.0 13795.0 10537.8 16351.5 15302.3	3.975709 4.137721 4.022751 4.213556 4.184756
Franklin Hotel flagpole 1909	29 43 33.201 84 59 00.965	1022.3 25.9	296 40 11.9 324 04 29.7 21 50 36.6	116 43 56.6 144 06 23.0 201 43 43.6	Bulkhead 2 Cedar Point Cape St. George L. H.	13645.5 10487.9 16520.5	4.134988 4.020688 4.218023
Weather signal 1909	29 43 25.469 84 58 58.659	784.2 1576.5	295 53 04.2 323 34 31.3 22 21 23.9	115 56 47.7 143 36 23.4 202 19 29.7	Bulkhead 2 Cedar Point Cape St. George L. H.	13484.5 10259.1 16323.2	4.129834 4.011110 4.212805
St. George light 1902	29 36 18.230 85 02 03.931	561.3 105.8	32 10 37.5 110 49 37.2	212 10 15.1 290 47 47.4	Cape St. George L. H. West Pass	2296.0 6390.9	3.360979 3.805564

## ST. MARKS RIVER TO ST. ANDREWS SOUND—Continued

Station	Latitude and longitude	Seconds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Supplementary points—Continued</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
Sand Island Cut front range light 1910	29 36 32.826 85 03 15.377	1010.7 413.7	114 43 57.2 164 00 18.5 281 37 24.0	294 42 43.4 343 59 41.0 101 39 00.4	West Pass 2 St. Vincent Point 2 New Inlet 2	4422.7 7396.3 5366.7	3.645683 3.869014 3.729707
Sand Island Cut rear range light 1910	29 36 21.629 85 02 59.905	665.9 1611.8	116 20 39.5 161 46 43.4 278 39 14.2	296 19 18.0 341 45 58.3 98 40 43.0	West Pass 2 St. Vincent Point 2 New Inlet 2	4947.0 7848.3 4896.1	3.694338 3.894778 3.689846
A (U. S. E.) 1910	29 38 07.356 85 05 52.263	226.5 1405.9	207 26 25.4 349 08 06.8	27 27 05.5 169 08 10.5	St. Vincent Point 2 West Pass 2	4731.8 1080.2	3.675028 3.033517
B (U. S. E.) 1910	29 37 58.136 85 06 07.282	1790.0 195.9	234 54 23.0 321 58 20.6	54 54 30.4 141 58 31.8	A (U. S. E.) West Pass 2	493.76 986.4	2.693516 2.994047
West Pass Cut front range light 1910	29 38 05.832 85 04 58.307	179.6 1568.5	189 45 03.4 296 09 50.3 50 54 27.3 91 51 19.6	9 45 16.8 116 12 17.6 230 54 04.3 271 50 52.9	St. Vincent Point 2 New Inlet 2 West Pass 2 A (U. S. E.)	4308.4 8942.7 1607.9 1452.2	3.634319 3.951469 3.206250 3.162012
West Pass old rear range light 1910	29 38 05.898 85 05 52.268	181.6 1406.0	292 35 34.8 348 39 39.0 59 23 14.7 180 09 26.7	112 38 28.8 168 39 42.7 239 23 07.3 0 09 26.7	New Inlet 2 West Pass 2 B (U. S. E.) A (U. S. E.)	10266.3 1036.2 469.3 44.9	4.011414 3.015452 2.671446 1.652016
West Pass Cut rear range light 1910	29 38 21.602 85 04 15.238	665.1 409.9	302 49 20.3 58 04 38.9 80 27 57.1 173 30 03.0	122 51 26.4 238 03 54.7 260 27 09.2 353 29 55.2	New Inlet 2 West Pass 2 A (U. S. E.) St. Vincent Point 2	8172.1 2835.4 2646.5 3784.9	3.912333 3.452610 3.422670 3.578056
D (U. S. E.) 1910	29 37 24.951 85 05 45.680	768.2 1228.9	150 22 17.5 172 16 30.8 186 10 43.7 199 59 54.8	330 22 06.8 352 16 27.5 6 10 44.1 20 00 31.6	B (U. S. E.) A (U. S. E.) West Pass 2 St. Vincent Point 2	1175.5 1317.6 246.2 5858.3	3.070208 3.119775 2.391247 3.767770
C (U. S. E.) 1910	29 37 37.755 85 05 43.491	1162.4 1170.0	12 13 18.9 134 26 17.0 165 29 03.9	192 13 18.3 314 26 05.2 345 28 59.6	West Pass 2 B (U. S. E.) A (U. S. E.)	152.9 896.3 941.5	2.184513 2.952467 2.973798
Remains of day beacon <sup>1</sup> 1910	29 37 12.20 85 02 24.89	375.6 669.6	150 04 09 300 28 45	330 03 06 120 29 56	St. Vincent Point 2 New Inlet 2	6805.7 4523.1	3.83287 3.65544
San Pedro 2 1910	29 42 43.128 85 22 54.743	1328.0 1471.2	221 42 47.3 251 53 33.1	41 45 10.1 71 55 06.2	St. Joseph 2 Blacks Island A. M.	11613.4 5308.8	4.064959 3.724999
Warehouse, outer end 1910	29 48 50.495 85 18 52.789	1554.8 1417.5	335 04 27.1 91 54 53.2 151 38 31.7	155 04 49.9 271 52 07.4 331 37 51.9	St. Joseph 2 Pompano San Carlos 2	2916.3 8960.5 4521.6	3.464829 3.952334 3.655288
Summer house 1910	29 53 47.893 85 21 39.244	1474.6 1052.8	26 51 11.0 44 04 38.1 141 42 21.9	206 49 47.8 224 03 36.6 321 41 51.5	Pompano St. Joseph Point 2 Consort	9931.3 4764.4 2642.1	3.997004 3.678005 3.421951
St. Joseph Point front range light 1910	29 55 05.277 85 22 49.973	162.5 1340.5	330 50 10.3 12 57 23.1 13 42 21.8	150 51 28.6 192 56 35.1 193 41 55.5	San Carlos 2 Pompano St. Joseph Point 2	8657.7 11537.4 5976.0	3.937404 4.062108 3.776411
St. Joseph Point rear range L. H. 1910	29 55 08.343 85 22 43.303	256.9 1161.6	332 10 33.6 13 42 34.4 15 07 37.4 115 25 08.9	152 11 48.6 193 41 43.1 195 07 07.8 295 21 40.6	San Carlos 2 Pompano St. Joseph Point 2 Apex	8655.3 11670.5 6112.0 12220.2	3.937284 4.067090 3.786181 4.087078
A 1910	30 01 47.612 85 34 21.483	1466.0 575.6	358 33 10.6 153 08 31.7 266 14 28.1 291 18 00.3 307 08 30.0	178 33 10.7 333 08 04.4 86 15 04.7 111 19 01.7 127 09 08.3	Anchor Spring Areola Arrow Abbot	417.9 3223.9 1962.3 3524.6 2575.3	2.621110 3.508387 3.292765 3.547108 3.410820
B 1910	30 02 08.699 85 34 13.649	267.9 365.7	10 34 57.1 143 11 33.7 286 35 11.9 302 07 09.6 320 06 07.7	190 34 53.3 323 11 02.5 106 35 44.6 122 08 07.1 140 06 42.1	Anchor Spring Areola Arrow Abbot	1085.6 2781.3 1824.1 3629.4 2873.2	3.035662 3.444254 3.261040 3.559832 3.458359
Hog Island 1910	30 03 43.723 85 36 26.609	1346.3 712.8	60 16 12.1 162 28 44.4 290 14 40.1	240 16 00.6 342 28 39.3 110 15 15.6	Celestine Bayou Bluff Spring	707.6 913.7 2020.1	2.849777 2.960813 3.305365
St. Andrews Bar rear range light 1910	30 04 34.443 85 37 19.378	1060.5 519.0	61 17 20.0 120 44 04.0 301 14 11.5	241 16 53.6 300 43 43.1 121 14 32.8	Hurricane East Sand Bluff Bayou Bluff	1608.6 1301.9 1331.2	3.206455 3.114567 3.124250
St. Andrews Bar front range light 1910	30 03 55.275 85 37 31.861	1701.9 853.4	111 55 20.1 157 15 00.1 250 41 50.9	291 54 59.9 337 14 45.4 70 42 18.4	Hurricane East Sand Bluff Bayou Bluff	1160.4 2029.2 1560.3	3.064617 3.307331 3.193202
Fish house gable 1910	30 04 56.185 85 38 13.893	1730.0 372.1	77 50 46.3 105 39 47.3 128 37 02.3	257 50 14.4 285 38 46.6 308 36 02.3	Hurricane West Lands end Welley	1742.9 3365.4 4102.1	3.241266 3.527033 3.613011
St. Andrews Bay front range light 1910	30 05 15.424 85 38 40.601	474.8 1087.4	45 51 21.1 97 07 58.0 128 18 56.4	225 51 02.6 277 07 10.7 308 18 09.8	Hurricane West Lands end Welley	1377.6 2544.9 3173.6	3.139113 3.405670 3.501556

<sup>1</sup> No check on this position.



## ST. ANDREWS BAY

Station	Latitude and longitude	Sec- onds in meters	Azimuth	Back azimuth	To station	Distance	Loga- rithm
<i>Principal points</i>							
St. Andrews Bay west base 1870	° ' " 30 07 36.688 85 44 17.438	1129.8 466.8	° ' " 127 06 00.0	° ' " 307 02 32.1	C	<i>Meters</i> 13873.3	4.142180
Davis Point 2 1869	30 07 14.295 85 41 10.806	440.2 289.3	97 52 15.7	277 50 42.0	St. Andrews Bay west base	5043.3	3.702715
Dyers Point 2 1870	30 10 38.947 85 43 53.541	1199.2 1432.6	325 20 23.2 6 30 09.6	145 21 44.9 186 29 57.6	Davis Point 2 St. Andrews Bay west base	7660.1 5648.4	3.884236 3.751928
St. Andrews Bay east base 1870	30 06 18.191 85 42 45.759	560.2 1225.0	134 34 04.9 235 47 38.5	314 33 18.9 55 48 26.1	St. Andrews Bay west base Davis Point 2	3444.71 3073.5	3.537152 3.487638
Courtney Point 2 1869	30 08 48.923 85 42 36.376	1506.4 973.5	321 49 28.2 3 05 53.5	141 50 11.2 183 05 48.8	Davis Point 2 St. Andrews Bay east base	3706.2 4648.1	3.568930 3.667277
Laguna 1869	30 07 08.621 85 42 41.233	265.5 1103.8	182 24 35.3 265 51 55.3	2 24 37.7 85 52 40.7	Dyers Point 2 Courtney Point 2 Davis Point 2	3967.5 3091.2 2427.0	3.598516 3.490131 3.385076
Vista Buena 2 1870	30 09 56.869 85 42 04.587	1751.2 122.7	343 57 16.6 22 07 45.8 113 58 14.5	163 57 43.6 202 07 29.9 293 57 19.8	Davis Point 2 Courtney Point 2 Dyers Point 2	5208.8 2258.5 3190.2	3.716735 3.353824 3.503812
West Bay Point 1870	30 12 57.662 85 44 30.399	1775.6 813.0	347 00 00.0	167 00 18.6	Dyers Point 2	4383.7	3.641836
North Bay Point 1870	30 14 02.705 85 43 16.146	83.3 431.7	44 45 30.0	224 44 52.6	West Bay Point	2820.3	3.450296
Crane Point 1871	30 15 07.423 85 47 39.976	228.6 1068.7	308 13 58.1	128 15 33.7	West Bay Point	6454.6	3.809868
Pelican Point 2 1910	30 14 19.250 85 45 35.472	592.8 948.5	277 46 38.6 325 17 14.7 114 01 38.1	97 47 48.8 145 17 47.5 294 00 35.3	North Bay Point West Bay Point Crane Point	3760.0 3056.1 3644.3	3.575193 3.485163 3.561620
Clio 2 1910	30 15 36.993 85 44 06.806	1139.1 181.9	334 59 13.7 7 19 42.6 44 43 28.8 80 56 13.9	154 59 39.2 187 19 30.7 224 42 44.1 260 54 26.4	North Bay Point West Bay Point Pelican Point 2 Crane Point	3203.7 4946.6 3369.0 5771.0	3.505656 3.694304 3.527495 3.761253
Medway 2 1910	30 17 10.529 85 46 39.620	324.2 1058.8	305 10 45.5 341 59 04.6 23 03 31.7	125 12 02.5 161 59 36.9 203 03 01.2	Clio 2 Pelican Point 2 Crane Point	4997.9 5545.9 4119.8	3.698785 3.743970 3.614874
Orcus 2 1910	30 17 07.207 85 50 05.689	221.9 152.0	268 55 16.9 313 25 50.1	88 57 00.8 133 27 03.5	Medway 2 Crane Point	5508.2 5364.2	3.741009 3.729504
Swan 2 1910	30 14 12.957 85 49 22.562	399.0 603.2	167 52 35.7 218 31 46.4 238 32 52.1	347 52 14.0 38 33 08.6 58 33 43.8	Orcus 2 Medway 2 Crane Point	5488.0 6990.7 3214.9	3.739417 3.844522 3.507165
Iris 2 1910	30 12 18.689 85 42 27.539	575.5 736.5	110 04 17.5 157 54 49.6	290 03 15.7 337 54 25.2	West Bay Point North Bay Point	3498.2 3456.6	3.543848 3.538653
Ceres 2 1910	30 14 55.712 85 40 48.214	1715.6 1289.0	28 47 17.7 67 35 10.0	208 46 27.7 247 33 55.5	Iris 2 North Bay Point	5516.6 4278.8	3.741672 3.631325
Juno Bayou 2 1910	30 15 23.722 85 41 57.135	730.5 1527.4	295 04 46.6 8 07 22.7	115 05 21.3 188 07 07.4	Ceres 2 Iris 2	2034.4 5755.3	3.308442 3.760069
Sulphur Point 2 1910	30 11 08.497 85 43 59.742	261.7 1598.3	166 17 34.0 192 15 37.1 228 45 51.9	346 17 18.6 12 15 59.0 48 46 38.3	West Bay Point North Bay Point Iris 2	3460.0 5489.5 3279.4	3.539079 3.739536 3.515797
Perdita 2 1910	30 12 07.554 85 44 42.746	232.6 1143.3	213 08 42.4 264 34 27.7 327 40 48.5	33 09 25.8 84 35 35.7 147 41 10.1	North Bay Point Iris 2 Sulphur Point 2	4235.1 3632.6 2151.8	3.626867 3.560221 3.332800
Aliena 2 1910	30 11 00.810 85 45 07.255	25.0 194.1	197 41 28.9 262 31 44.3	17 41 41.2 82 32 18.2	Perdita 2 Sulphur Point 2	2157.2 1821.6	3.333896 3.260447
Bluff 1910	30 10 08.479 85 44 52.797	261.0 1412.7	166 30 09.4 184 11 37.2 217 31 23.0	346 30 02.1 4 11 42.3 37 31 49.7	Aliena 2 Perdita 2 Sulphur Point 2	1657.2 3676.4 2330.3	3.219364 3.565425 3.367411
Dyers Point 3 1910	30 10 39.558 85 43 53.175	1218.1 1422.7	59 02 38.5 108 16 39.3 168 50 50.2 294 20 07.7	239 02 08.6 288 16 02.1 348 50 46.9 114 21 02.3	Bluff Aliena 2 Sulphur Point 2 Vista Buena 2	1860.3 2087.1 908.2 3189.0	3.269572 3.319550 2.958203 3.503649
Bear Point 1910	30 09 41.104 85 43 26.753	1265.7 715.8	110 06 51.6 132 23 39.5 158 33 29.2 257 32 39.9	290 06 08.4 312 22 49.0 338 33 15.9 77 33 21.2	Bluff Aliena 2 Dyers Point 3 Vista Buena 2	2451.8 3640.6 1933.8 2251.6	3.389483 3.561178 3.286404 3.352496
Courtney Point 3 1910	30 08 49.809 85 42 36.562	1533.8 978.5	139 37 32.2 148 45 44.6 202 30 23.4	319 37 07.0 328 45 06.1 22 30 39.5	Bear Point Dyers Point 3 Vista Buena 2	2073.4 3952.6 2235.2	3.316679 3.596883 3.349310

## ST. ANDREWS BAY—Continued

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Loga-rithm
<i>Principal points—Contd</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
Red Fish Point 3	30 08 29.978	923.1	98 59 30.4	278 58 17.9	Courtney Point 3	3911.4	3.592334
1910	85 40 12.206	326.7	131 39 57.2	311 39 00.8	Vista Buena 2	4025.3	3.604797
Drumond	30 09 46.744	1439.4	333 37 20.6	153 37 42.6	Red Fish Point 3	2638.4	3.421343
1910	85 40 56.004	1498.6	56 55 24.5	236 54 34.0	Courtney Point 3	3211.7	3.506732
Davis Point 3	30 07 23.404	720.7	139 29 51.6	319 29 09.0	Courtney Point 3	3499.3	3.543982
1910	85 41 11.641	311.6	163 18 41.2	343 18 14.7	Vista Buena 2	4933.4	3.693142
			185 24 55.3	5 25 03.2	Drumond	4433.5	3.646746
Laguna 2	30 07 00.594	18.3	178 31 59.4	358 31 57.8	Courtney Point 3	3364.0	3.526857
1910	85 42 33.345	892.7	252 11 30.8	72 12 11.8	Davis Point 3	2297.2	3.361201
Spanish Shanty	30 06 09.223	284.0	139 34 32.5	319 34 07.2	Laguna 2	2078.0	3.317638
1910	85 41 43.012	1151.7	163 50 12.9	343 49 46.0	Courtney Point 3	5148.3	3.711693
			200 11 10.5	20 11 26.2	Davis Point 3	2433.7	3.386258
Middle	30 06 40.995	1262.2	58 01 09.7	238 01 09.7	Spanish Shanty	1847.4	3.266553
1910	85 40 44.482	1191.0	77 59 59.8	257 59 00.0	E. B. P.	3264.1	3.513761
			101 42 22.6	281 41 28.0	Laguna 2	2976.2	3.473669
Bunkers Point	30 08 41.927	1291.1	73 20 05.5	253 19 42.4	Red Fish Point 3	1282.7	3.108129
1910	85 39 26.293	703.8	92 44 32.2	272 42 56.7	Courtney Point 3	5098.0	3.707396
			129 44 40.9	309 43 55.8	Drumond	3122.0	3.494436
Palmetto Point 2	30 07 24.942	768.0	129 06 41.1	309 05 54.9	Red Fish Point 3	3175.0	3.501739
1910	85 38 40.160	1075.1	152 29 18.8	332 28 55.6	Bunkers Point	2672.8	3.426971
Town Point 2	30 08 07.788	239.8	346 43 35.7	166 43 41.5	Palmetto Point 2	1355.5	3.132101
1910	85 38 51.786	1386.1	107 37 04.1	287 36 23.7	Red Fish Point 3	2258.3	3.353777
			138 42 06.2	318 41 48.9	Bunkers Point	1399.3	3.145904
Cromanton	30 07 17.429	536.7	100 59 12.7	280 58 50.3	Palmetto Point 2	1214.3	3.084319
1910	85 37 55.630	1489.3	135 53 41.1	315 53 12.9	Town Point 2	2159.6	3.334382
Military Point 2	30 07 31.703	976.2	65 24 44.6	245 24 26.6	Cromanton	1056.2	3.023762
1910	85 37 19.751	528.7	84 28 53.6	264 28 13.2	Palmetto Point 2	2162.5	3.334955
			114 17 00.1	294 16 13.9	Town Point 2	2702.5	3.431767
Watson Point 2	30 08 09.573	294.8	323 50 03.8	143 50 19.8	Military Point 2	1444.4	3.159674
1910	85 37 51.592	1380.9	3 51 04.5	183 51 02.5	Cromanton	1609.2	3.206621
			43 24 48.7	223 24 24.3	Palmetto Point 2	1891.7	3.276859
Parker Point 2	30 07 33.985	1046.5	86 21 21.7	266 21 01.0	Military Point 2	1104.6	3.043191
1910	85 36 38.571	1032.5	119 16 56.0	299 16 19.3	Watson Point 2	2240.8	3.350402
Gainer	30 08 14.964	460.8	320 58 50.6	140 59 09.8	Parker Point 2	1624.0	3.210593
1910	85 37 16.767	448.8	3 25 52.2	183 25 50.7	Military Point 2	1334.5	3.125305
			79 54 18.9	259 54 01.4	Watson Point 2	946.8	2.976243
Ferry Point	30 07 22.759	700.8	141 49 09.4	321 48 48.1	Watson Point 2	1833.9	3.263373
1910	85 37 09.239	247.3	172 51 19.7	352 51 15.9	Gainer	1620.1	3.209532
			247 09 50.2	67 10 05.6	Parker Point 2	890.8	2.949762
Gabel 2	30 06 17.103	526.6	174 00 56.8	354 00 52.8	Ferry Point	2032.7	3.308083
1910	85 37 01.323	35.4	194 25 37.6	14 25 49.0	Parker Point 2	2444.4	3.388179
Oyster east	30 06 20.830	641.4	85 05 09.2	265 04 44.2	Gabel 2	1338.8	3.126729
1910	85 36 11.501	308.0	140 58 32.9	320 58 03.9	Ferry Point	2454.7	3.389998
Oyster west	30 06 29.285	901.7	71 30 06.1	251 29 45.1	Gabel 2	1182.1	3.072660
1910	85 36 19.453	520.8	141 00 50.0	321 00 25.0	Ferry Point	2118.4	3.326009
			165 35 35.6	345 35 26.0	Parkers Point 2	2056.9	3.313216
Viola 2	30 05 37.516	1155.2	121 21 16.4	301 20 38.9	Gabel 2	2343.0	3.369774
1910	85 35 46.592	1247.6	153 26 00.6	333 25 48.1	Oyster east	1491.2	3.173535
Shoal Bayou 2	30 05 48.415	1490.8	69 27 12.6	249 26 55.8	Viola 2	956.1	2.980496
1910	85 35 13.158	352.4	106 58 12.7	286 57 18.4	Gabel 2	3027.9	3.481135
			122 34 50.9	302 34 21.6	Oyster east	1853.8	3.268063
Dixon 2	30 07 04.907	151.1	35 12 36.2	215 12 05.1	Shoal Bayou 2	2882.6	3.459784
1910	85 34 11.087	296.8	67 10 38.8	247 09 38.4	Oyster east	3497.8	3.543795
East Point 2	30 05 37.743	1162.2	97 46 08.9	277 45 23.9	Shoal Bayou 2	2432.7	3.386093
1910	85 33 43.138	1155.1	108 28 43.2	288 27 28.8	Oyster east	4188.2	3.622026
			164 25 23.9	344 25 09.9	Dixon 2	2786.3	3.445026
Didi Point 2	30 05 35.501	1093.1	91 04 20.0	271 03 10.3	East Point 2	3722.4	3.570827
1910	85 31 24.147	646.5	121 38 29.5	301 37 05.8	Dixon 2	5249.4	3.720111
Laird	30 07 14.545	447.9	343 04 20.5	163 04 37.9	Didi Point 2	3187.8	3.503491
1910	85 31 58.810	1574.3	43 08 52.1	223 07 59.8	East Point 2	4084.9	3.611186
			85 13 07.0	265 12 00.6	Dixon 2	3553.5	3.550657
Drogan 2	30 04 36.168	1113.8	118 46 47.1	298 45 42.4	East Point 2	3939.3	3.595415
1910	85 31 34.197	915.8	172 18 19.9	352 18 07.6	Laird	4921.0	3.692055
			188 22 45.5	8 22 50.5	Didi Point 2	1846.7	3.266392
<i>Supplementary points</i>							
Old west base	30 04 50.269	1548.0	137 18 48.9	317 17 35.2	Laguna	5796.4	3.763158
1854	85 40 14.433	386.5	161 12 28.1	341 11 59.8	Davis Point 2	4684.6	3.670676
			295 07 59.8	115 08 19.9	Hurricane Point	1188.0	3.074825



## TRIANGULATION ALONG THE WEST COAST OF FLORIDA.

47

## ST. ANDREWS BAY—Continued

Station	Latitude and longitude	Seconds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Supplementary points—Contd</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
E. B. P. 1910	30 06 18.941 85 42 43.731	583.3 1170.8	231 09 19.6 280 25 27.8	51 10 05.8 100 25 58.3	Davis Point 3 Spanish Shanty	3165.1 1653.0	3.500391 3.218272
North base (U. S. E.) 1910	30 08 46.425 85 42 38.344	1429.6 1026.2	317 45 39.5 342 58 57.2 357 38 53.9	137 46 23.0 162 59 25.0 177 38 56.4	Davis Point 3 Spanish Shanty Laguna 2	3452.7 5062.1 3261.5	3.538153 3.704329 3.513417
South base (U. S. E.) 1910	30 08 13.556 85 43 08.549	417.4 228.8	296 15 28.2 329 06 36.1 337 14 31.2 218 36 47.5	116 16 26.9 149 07 19.0 157 14 48.8 38 37 02.6	Davis Point 3 Spanish Shanty Laguna 2 North base (U. S. E.)	3489.6 4461.0 2436.3 1295.3	3.542776 3.649427 3.386723 3.112385
Lowell's house chimney 1910	30 10 11.599 85 45 03.223	357.2 86.2	175 55 43.8 188 43 16.7 224 06 19.0 245 19 21.9	355 55 41.8 8 43 27.1 44 06 51.0 65 19 57.1	Aliena 2 Perdita 2 Sulphur Point 2 Dyers Point 3	1519.1 3612.3 2440.1 2062.4	3.181600 3.557782 3.387408 3.314383
Trousdale Boat Works stack 1910	30 10 36.204 85 42 43.920	1114.7 1175.1	356 33 36.5 34 02 33.4 76 06 11.0	176 33 40.2 214 02 11.9 256 05 06.3	Courtney Point 3 Bear Point Bluff	3282.0 2047.5 3552.3	3.516143 3.311219 3.550514
Bay Bottling Works chimney 1910	30 10 33.940 85 42 39.202	1045.1 1048.8	358 44 15.0 38 01 50.7 77 38 17.7	178 44 16.3 218 01 26.8 257 37 10.6	Courtney Point 3 Bear Point Bluff	3207.2 2065.4 3659.4	3.506123 3.314997 3.563414
Shepherd's house highest chimney 1910	30 10 26.703 85 42 20.430	822.2 546.6	8 14 01.2 51 39 13.7 82 10 23.0	188 13 53.1 231 38 40.4 262 09 06.5	Courtney Point 3 Bear Point Bluff	3014.6 2262.9 4158.6	3.479234 3.354070 3.618952
Shepherd's residence west chimney 1910	30 10 21.166 85 42 15.844	651.7 423.9	11 09 00.9 56 58 29.0 84 41 45.9	191 08 50.5 236 57 53.4 264 40 27.1	Courtney Point 3 Bear Point Bluff	2867.2 2263.1 4217.6	3.457454 3.354709 3.625069
Ware Mercantile Co. wharf- house flagstaff 1910	30 10 03.401 85 42 15.571	104.7 416.6	304 23 03.1 13 55 24.5 70 10 59.4 113 05 47.1	124 23 08.6 193 55 13.9 250 10 23.6 293 04 58.0	Vista Buena 2 Courtney Point 3 Bear Point Dyers Point 3	356.2 1854.5 2024.7 2838.9	2.551652 3.268216 3.306356 3.453153
St. Andrews ice plant stack 1910	30 09 53.870 85 41 36.354	1658.8 972.8	281 29 03.7 318 54 50.8 39 14 46.7 82 25 43.1	101 29 24.0 138 55 33.1 219 14 16.5 262 24 47.7	Drumond Red Fish Point 3 Courtney Point 3 Bear Point	1101.8 3426.9 2546.9 2980.2	3.042087 3.534905 3.406017 3.474241
St. Andrews flag, end of ice plant wharf 1910	30 09 42.803 85 41 36.033	1318.0 964.2	119 32 58.4 263 32 01.1 314 58 58.2	299 32 44.1 83 32 21.2 134 59 40.3	Vista Buena 2 Drumond Red Fish Point 3	878.3 1078.0 3171.9	2.943626 3.032605 3.501320
Fish 1910	30 09 45.089 85 41 36.306	1388.3 971.6	43 27 15.4 87 37 49.0 115 36 39.7 267 17 32.3 315 46 30.7	223 26 45.1 267 36 53.5 295 36 25.5 87 17 52.5 135 47 12.8	Courtney Point 3 Bear Point Vista Buena 2 Drumond Red Fish Point 3	2344.7 2958.0 839.2 1079.6 3227.1	3.370085 3.471000 2.923849 3.033270 3.508818
Panama City ice plant stack 1910	30 09 22.708 85 39 54.684	699.2 1463.4	16 06 36.5 76 50 59.6 114 16 56.9	196 06 27.7 256 49 38.3 294 16 26.1	Red Fish Point 3 Courtney Point 3 Drumond	1690.0 4448.9 1800.1	3.227888 3.648256 3.255288
Panama City, U.S. Weather Bureau signal 1910	30 09 18.066 85 39 51.402	556.3 1375.5	20 36 30.9 108 32 36.6 117 03 48.1	200 36 20.4 288 31 29.7 297 03 15.6	Red Fish Point 3 Vista Buena 2 Drumond	1581.9 3758.8 1941.2	3.199189 3.575055 3.288071
Railroad wharf, gable of freight house 1910	30 09 13.402 85 40 01.256	412.7 33.6	316 00 15.3 317 22 25.2 326 58 25.4	136 00 32.9 137 23 00.1 146 59 06.1	Bunkers Point Town Point 2 Palmetto Point 2	1347.1 2745.7 3983.0	3.129415 3.438649 3.600214
Crawford's house, center gable 1910	30 09 10.984 85 39 44.998	338.2 1204.2	29 58 25.0 81 55 40.7 98 53 54.8 110 43 44.7 120 05 51.5	299 58 11.3 261 54 20.5 278 52 03.4 290 42 34.6 300 05 15.8	Red Fish Point 3 Courtney Point 3 Bear Point Vista Buena 2 Drumond	1457.6 4637.4 6006.2 3993.6 2196.1	3.163630 3.669278 3.778003 3.601363 3.341652
House south of Red Fish Point, chimney 1910	30 07 54.002 85 40 38.630	1662.7 1034.0	118 34 22.3 148 42 17.9 172 22 21.7	298 33 20.1 328 41 34.8 352 22 13.0	Courtney Point 3 Vista Buena 2 Drumond	3593.9 4427.8 3502.5	3.555561 3.640184 3.544382
Donaldson house west chimney 1910	30 07 15.768 85 36 18.404	485.5 492.7	98 59 34.7 123 35 53.3 136 05 58.9 106 38 25.5	278 59 09.2 303 35 06.5 316 05 48.8 286 37 54.7	Ferry Point Watson Point 2 Parkers Point 2 Military Point 2	1377.8 2994.5 778.5 1713.9	3.139171 3.476325 2.891209 3.233996

## CHOCTAWHATCHEE BAY TO ST. ANDREWS BAY

<i>Principal points</i>							
Exit 1871	30 23 39.635 86 35 45.324	1220.5 1210.0	97 03 18.8 131 01 53.8	277 02 49.4 311 01 37.6	Gulf Burlison	1561.7 1134.4	3.193592 3.054772
Stevens 1871	30 24 21.742 86 35 14.309	669.5 381.9	32 33 40.8 65 04 55.5	212 33 25.1 245 04 10.4	Exit Gulf	1538.4 2621.9	3.187066 3.418611

## CHOCTAWHATCHEE BAY TO ST. ANDREWS BAY—Continued

Station	Latitude and longitude	Sec- onds in meters	Azimuth	Back azimuth	To station	Distance	Loga- rithm
<i>Principal points—Contd</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
Choctawhatchee 1871	30 23 33.188 86 34 03.148	1022.0 84.0	94 10 10.2 128 12 36.5	274 09 18.5 308 12 00.5	Exit Stevens	2734.9 2417.4	3.436941 3.383350
Garnier 1871	30 25 51.063 86 33 23.242	1572.4 620.2	14 05 11.5 47 09 01.6	194 04 51.3 227 08 05.4	Choctawhatchee Stevens	4377.2 4043.8	3.641194 3.606789
Cobbs Point 1872	30 25 04.666 86 29 17.074	143.7 455.7	69 46 17.9 102 17 11.9	249 43 53.1 282 15 07.2	Choctawhatchee Garnier	8139.1 6723.2	3.910576 3.827575
Tripod 1872	30 27 38.469 86 29 38.168	1184.6 1018.2	353 13 15.4 43 07 59.0 61 10 21.7	173 13 26.1 223 05 44.8 241 08 27.6	Cobbs Point Choctawhatchee Garnier	4769.4 10346.7 6855.9	3.678496 4.014800 3.836063
White Point 1872	30 27 05.979 86 25 16.062	184.1 428.5	59 52 00.9 98 09 38.8	239 49 58.8 278 07 25.9	Cobbs Point Tripod	7437.5 7063.9	3.871428 3.849044
Shaker 1872	30 24 37.734 86 26 15.741	1162.0 420.1	99 44 10.7 135 52 11.4 199 13 41.6	279 42 38.9 315 50 28.8 19 14 11.8	Cobbs Point Tripod White Point	4910.4 7755.8 4834.8	3.691113 3.889624 3.684376
Stake Point 1872	30 27 08.126 86 23 52.244	250.2 1393.9	39 35 47.7 66 20 27.0 88 18 45.9	219 34 35.0 246 17 42.4 268 18 03.4	Shaker Cobbs Point White Point	6009.2 9465.0 2237.2	3.778815 3.976120 3.349711
Four Mile Point 1872	30 25 23.152 86 18 50.637	712.9 1351.5	83 19 00.9 111 54 14.3	263 15 15.5 291 51 41.5	Shaker Stake Point	11961.7 8673.0	4.077793 3.938168
Blunt 1872	30 28 18.086 86 18 05.611	556.9 149.7	12 34 30.9 62 36 45.4 76 54 36.3	192 34 08.1 242 32 37.1 256 51 40.6	Four Mile Point Shaker Stake Point	5519.2 14733.3 9494.9	3.741873 4.168309 3.977489
Live Oak Point 1872	30 25 44.508 86 14 57.833	1370.6 1543.4	83 58 26.9 133 21 42.3	263 56 29.0 313 20 07.1	Four Mile Point Blunt	6247.5 6889.5	3.795709 3.838188
Alaqua 1872	30 28 27.256 86 14 04.610	839.3 123.0	15 49 24.8 53 24 44.8 87 30 06.6	195 48 57.8 233 22 19.8 267 28 04.4	Live Oak Point Four Mile Point Blunt	5208.9 9506.8 6434.7	3.716744 3.978033 3.808530
La Grange 1872	30 25 54.338 86 09 13.544	1673.3 361.5	88 08 14.0 121 15 08.4	268 05 19.6 301 12 40.9	Live Oak Point Alaqua	9192.6 9081.7	3.963439 3.958167
Alligator 2 1872	30 25 08.800 86 13 35.277	271.0 941.6	116 31 40.6 172 42 14.3 258 37 48.2	296 30 58.8 352 41 59.4 78 40 00.7	Live Oak Point Alaqua La Grange	2462.4 6161.1 7124.3	3.391353 3.789655 3.852740
Criglar 1872	30 23 15.463 86 10 28.143	476.2 751.3	148 58 54.2 202 08 27.5	328 57 04.6 22 09 05.3	Alaqua La Grange	11205.0 5281.9	4.049410 3.722793
Blue Mountain 1872	30 20 50.499 86 12 11.497	1555.0 307.1	167 53 34.8 206 54 28.1	347 52 37.5 26 55 58.1	Alaqua La Grange	14385.4 10493.2	4.157922 4.020908
High 1872	30 20 21.859 86 12 16.530	673.1 441.5	188 40 01.0	8 40 03.5	Blue Mountain	892.1	2.950415
I 1872	30 18 13.452 86 05 24.812	414.2 663.0	109 48 04.7	289 44 36.8	High	11688.3	4.067753
G 1872	30 16 27.619 86 00 32.781	850.4 876.1	112 41 04.6	292 38 37.3	I	8457.4	3.927236
E 1872	30 14 37.401 85 56 07.388	1151.7 197.5	115 35 02.1	295 32 48.4	G	7864.6	3.895677
C 1872	30 12 08.282 85 51 11.121	255.0 297.8	120 06 55.0	300 04 25.9	E	9157.2	3.961764
Alligator Point 2 1910	30 25 17.327 86 13 34.535	533.6 921.7	260 41 19.0 307 00 41.3	80 43 31.2 127 02 15.6	La Grange Criglar	7057.7 6231.8	3.848662 3.794616
Alaqua Point 2 1910	30 28 26.357 86 13 52.664	811.6 1404.8	302 08 03.2 355 14 54.4	122 10 24.7 175 15 03.6	La Grange Alligator Point 2	8796.0 5840.9	3.944284 3.766482
Live Oak Point 2 1910	30 25 44.780 86 14 57.128	1378.9 1524.6	199 03 52.2 268 08 13.6 290 58 37.4	19 04 24.9 88 11 07.7 110 59 19.2	Alaqua Point 2 La Grange Alligator Point 2	5264.4 9173.6 2360.7	3.721348 3.962539 3.373048
Blunt 2 1910	30 28 18.514 86 18 06.573	570.1 148.6	267 55 54.0 313 15 46.0	87 58 02.3 133 17 21.5	Alaqua Point 2 Live Oak Point 2	6750.5 6905.7	3.829335 3.839210
Four Mile Point 2 1910	30 25 23.518 86 18 50.638	724.2 1351.4	192 34 31.6 234 40 24.6 263 59 09.2	12 34 54.4 51 42 55.6 84 01 07.4	Blunt 2 Alaqua Point 2 Live Oak Point 2	5521.2 9742.0 6266.0	3.742035 3.988646 3.796990
Stake Point 2 1910	30 27 08.054 86 23 52.535	248.0 1401.7	256 46 59.2 291 45 35.6	76 49 55.1 111 48 08.6	Blunt 2 Four Mile Point 2	9506.9 8675.1	3.978039 3.938275
Shaker 2 1910	30 24 37.448 86 26 15.357	1153.2 409.9	219 24 13.8 242 27 05.0 263 09 10.7	39 25 26.1 62 31 13.1 83 12 55.9	Stake Point 2 Blunt 2 Four Mile Point 2	6002.8 14735.5 11953.9	3.778355 4.168306 4.077508
White Point 2 1910	30 27 05.630 86 25 15.836	173.4 422.5	268 04 13.9 19 11 49.2	88 04 56.1 199 11 19.1	Stake Point 2 Shaker 2	2223.7 4831.6	3.347079 3.684687



## TRIANGULATION ALONG THE WEST COAST OF FLORIDA.

49

## CHOCTAWHATCHEE BAY TO ST. ANDREWS BAY—Continued.

Station	Latitude and longitude	Seconds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Principal points—Contd</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
Cobbs Point 2	30 25 05.336	164.3	240 09 13.4	60 11 16.0	White Point 2	7447.0	3.871980
1910	86 29 17.936	478.7	279 58 53.2	100 00 25.6	Shaker 2	4948.2	3.694443
Tripod 2	30 27 40.165	1236.8	278 43 37.0	98 45 48.3	White Point 2	6994.5	3.844758
1910	86 29 34.964	932.8	316 33 19.3	136 35 00.4	Shaker 2	7747.7	3.889174
			354 33 18.1	174 33 26.7	Cobbs Point 2	4789.3	3.680272
Garnier 2	30 25 52.828	1626.7	241 14 33.5	61 16 28.0	Tripod 2	6873.7	3.837188
1910	86 33 20.843	556.2	282 41 44.9	102 43 47.9	Cobbs Point 2	6645.5	3.822526
Choctawhatchee 2	30 23 34.070	1049.1	197 09 30.3	17 09 55.3	Garnier 2	4471.9	3.650494
1910	86 34 10.281	274.5	224 05 42.2	44 08 01.6	Tripod 2	10555.1	4.023463
			250 10 24.2	70 12 52.1	Cobbs Point 2	8294.1	3.918769
Stevens 2	30 24 18.897	581.9	226 43 38.8	46 44 37.1	Garnier 2	4220.3	3.625343
1910	86 35 15.991	426.8	308 11 45.2	128 12 18.5	Choctawhatchee 2	2232.1	3.348713
Santa Rosa east base	30 23 38.249	1177.8	79 13 34.8	259 13 22.0	Choctawhatchee 2	688.3	2.837788
1910	86 33 44.952	1200.1	117 15 25.0	297 14 38.9	Stevens 2	2733.6	3.436738
			188 49 28.3	8 49 40.5	Garnier 2	4193.8	3.622606
Santa Rosa west base	30 23 42.317	1303.1	161 34 37.6	341 34 30.5	Stevens 2	1187.3	3.074552
1910	86 35 01.934	51.6	213 52 10.2	33 53 01.4	Garnier 2	4840.6	3.684900
			273 28 56.4	93 29 35.4	Santa Rosa east base	2058.9	3.313637
			280 25 51.4	100 26 17.5	Choctawhatchee 2	1402.1	3.146785
Exit 2	30 23 42.870	1320.1	214 02 35.1	34 02 49.3	Stevens 2	1338.9	3.126745
1910	86 35 44.071	1176.6	276 10 11.6	96 10 59.1	Choctawhatchee 2	2518.4	3.401129
Lane 2	30 23 42.321	1303.2	87 21 29.7	267 19 45.9	Choctawhatchee 2	5482.9	3.739007
1910	86 30 45.119	1204.5	98 52 20.8	278 50 03.7	Stevens 2	7317.9	3.864386
			134 02 46.6	314 01 27.8	Garnier 2	5781.5	3.762039
East Pass 2	30 23 06.527	201.0	99 35 27.6	279 33 52.3	Choctawhatchee 2	5097.3	3.707340
1910	86 31 02.012	53.7	144 07 08.4	324 05 58.0	Garnier 2	6321.1	3.800791
			202 15 05.8	22 15 14.3	Lane 2	1190.9	3.075877
Bar	30 23 05.947	183.1	90 33 24.0	270 32 48.9	East Pass 2	1855.4	3.268447
1910	86 29 52.518	1402.4	128 34 49.2	308 34 22.6	Lane 2	1796.3	3.254369
Saddle	30 23 24.831	764.6	46 23 31.8	226 23 20.2	Bar	843.1	2.925866
1910	86 29 29.653	791.6	77 07 50.5	257 07 03.8	East Pass 2	2529.3	3.403007
			104 58 20.2	284 57 42.0	Lane 2	2085.4	3.319186
<i>Supplementary points</i>							
Choctawhatchee East Pass rear range light	30 23 19.699	606.6	72 31 00.3	252 30 34.8	Bar	1409.3	3.148991
1910	86 29 02.172	58.0	82 47 00.9	262 46 00.3	East Pass 2	3225.1	3.508537
			102 09 29.2	282 09 15.3	Saddle	750.5	2.875352
			104 13 49.7	284 12 57.6	Lane 2	2835.2	3.452587
Choctawhatchee East Pass front range light	30 23 17.598	541.9	74 30 51.8	254 30 27.3	Bar	1343.4	3.128221
1910	86 29 04.025	107.5	83 49 53.5	263 48 53.9	East Pass 2	3168.4	3.500837
			108 02 00.3	288 01 47.3	Saddle	719.5	2.857054
East day beacon	30 23 55.700	1715.2	99 21 21.2	279 19 58.9	Stevens 2	4399.2	3.643371
1910	86 32 33.376	890.9	160 38 56.5	340 38 32.5	Garnier 2	3822.8	3.582379
			278 06 19.7	98 07 14.6	Lane 2	2987.1	3.475255
West day beacon	30 23 58.992	1816.6	100 03 05.9	280 02 00.3	Stevens 2	3515.0	3.545928
1910	86 33 06.328	168.8	173 41 39.8	353 41 32.5	Garnier 2	3526.7	3.547374
			277 44 40.5	97 45 52.1	Lane 2	3804.4	3.580281
Santa Rosa Sound rear range light	30 24 02.616	80.5	244 06 58.0	64 07 17.6	Stevens 2	1148.6	3.060152
1910	86 35 54.703	1460.2	334 58 38.1	154 58 43.5	Exit 2	671.0	2.82671
			68 04 18.1	248 03 54.0	Gulf 2	1369.8	3.136669
			94 15 36.6	274 15 25.3	Burison 2	597.5	2.776311
Santa Rosa Sound front range light	30 24 03.052	94.0	231 37 09.0	51 37 20.8	Stevens 2	785.9	2.895375
1910	86 35 39.071	1043.0	12 07 15.7	192 07 13.2	Exit 2	635.6	2.803203
			91 45 10.5	271 44 51.3	Burison 2	1013.6	3.005849

## SANTA ROSA SOUND

<i>Principal points</i>							
Entrance	30 19 31.399	966.9	86 40 52.3	266 39 47.0	Pond	3460.7	3.539158
1870	87 11 40.192	1073.7	166 02 28.3	346 02 09.4	Fair Point 2	4139.4	3.616938
Deer Point 2	30 20 33.063	1018.1	30 31 28.2	210 31 07.0	Entrance	2204.2	3.343259
1870	87 10 58.284	1556.7	65 21 15.4	245 19 48.9	Pond	5032.9	3.701818
			81 17 45.7	261 14 30.0	Fort Pickens	10469.9	4.019944
			91 04 36.0	271 02 03.0	Navy Yard wharf	8089.8	3.907936
			135 00 41.3	315 00 01.2	Fair Point 2	2995.4	3.476459
Sabine Hill	30 19 43.049	1325.6	84 19 48.8	264 18 40.6	Entrance	3625.2	3.559335
1870	87 09 25.153	671.9	121 46 01.9	301 45 14.9	Deer Point 2	2925.8	3.466247

## SANTA ROSA SOUND—Continued.

Station	Latitude and longitude	Sec- onds in meters	Azimuth	Back azimuth	To station	Distance	Loga- rithm
<i>Principal points—Contd</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
Grassy Point 1870	30 21 03.576 87 09 43.307	110.2 1156.6	348 56 02.1 47 44 00.4 64 52 10.9	168 56 11.3 227 43 01.4 244 51 33.0	Sabine Hill Entrance Deer Point 2	2526.6 4219.5 2212.0	3.402538 3.625259 3.344785
Stumps 1871	30 21 45.301 87 07 56.372	1395.0 1505.4	32 12 46.4 65 47 03.2	212 12 01.6 245 46 09.2	Sabine Hill Grassy Point	4449.0 3131.5	3.648267 3.496752
Sharp 1871	30 20 02.918 87 07 17.835	89.8 476.4	161 55 20.3 79 48 39.6 115 41 04.6	341 55 00.8 259 47 35.3 295 39 51.1	Stumps Sabine Hill Grassy Point	3316.4 3455.6 4311.1	3.520670 3.538523 3.634592
Range 1871	30 20 43.726 87 04 46.381	1346.5 1238.8	72 45 17.0 110 30 11.5	252 44 00.5 290 28 35.5	Sharp Stumps	4236.1 5416.7	3.626963 3.733735
Creek 1871	30 22 26.025 87 05 14.100	801.4 376.5	346 46 26.2 36 52 29.0 73 52 15.5	166 46 40.2 216 51 26.5 253 50 53.5	Range Sharp Stumps	3235.9 5508.1 4510.9	3.509992 3.740998 3.654264
Marsh 1871	30 22 39.292 87 03 19.625	1209.9 524.0	33 04 18.8 82 23 42.9	213 03 34.9 262 22 45.0	Range Creek	4246.3 3083.8	3.628012 3.489081
Bower 1871	30 21 06.572 87 02 40.325	202.4 1077.0	78 12 24.3 120 47 49.7 159 49 16.8 78 12 09.6 121 09 39.9 160 29 58.9	258 11 20.6 300 46 32.0 339 48 57.0 258 11 05.8 301 08 22.7 340 29 39.5	Range Creek Marsh Range 2 Creek 2 Marsh 2	3439.4 4780.0 3041.9 3442.5 4766.5 3068.1	3.536484 3.679430 3.483143 3.536867 3.678204 3.488666
Sand Hill 1871	30 21 32.425 86 59 51.062	998.5 1363.6	80 01 25.5 110 18 17.6	259 59 59.9 290 16 32.2	Bower Marsh	4590.0 5937.6	3.661809 3.773614
Ranch 1871	30 23 12.778 86 59 28.488	393.5 760.5	11 02 20.9 52 49 38.7 80 31 49.4	191 02 09.5 232 48 01.7 260 29 52.5	Sand Hill Bower Marsh	3148.4 6429.9 6256.7	3.498089 3.808203 3.796343
Agassiz 1871	30 21 52.535 86 57 57.291	1617.7 1529.9	78 29 17.1 135 25 32.2	258 28 19.6 315 24 46.1	Sand Hill Ranch	3100.7 3469.1	3.491455 3.540219
Two Points 1871	30 23 29.192 86 57 52.440	898.9 1399.9	1 58 43.9 41 08 38.9 78 44 28.1	181 58 41.9 221 07 39.4 258 43 40.0	Agassiz Sand Hill Ranch	2978.2 4774.1 2587.4	3.473947 3.678890 3.412856
Peak 1871	30 22 14.469 86 55 15.433	445.6 412.0	81 07 45.8 118 37 12.4	261 06 24.0 298 35 52.5	Agassiz Two Points	4374.5 4805.4	3.640932 3.681726
Deserted 1871	30 23 44.913 86 55 05.081	1383.0 82.3	6 45 13.7 53 21 49.9 83 56 10.0	186 45 07.4 233 20 21.8 263 54 43.8	Peak Agassiz Two Points	2804.5 5797.4 4573.6	3.447854 3.763231 3.660254
Cove 1871	30 22 32.932 86 53 18.117	1014.1 483.7	79 43 16.5 128 20 58.0	259 42 17.2 308 20 04.9	Peak Deserted	3183.7 3573.0	3.502929 3.553027
Big River 1871	30 23 51.493 86 53 20.787	1585.6 554.8	358 18 41.6 45 42 05.1 85 45 49.3	178 18 42.9 225 41 07.0 265 44 57.5	Cove Peak Deserted	2420.2 4277.3 2738.2	3.383946 3.631165 3.437472
John 1871	30 22 50.354 86 51 25.089	1550.6 669.8	79 55 40.6 121 22 14.3	259 54 43.4 301 21 15.8	Cove Big River	3065.2 3617.3	3.486453 3.558389
Bluff 1871	30 24 01.621 86 51 31.739	49.9 847.2	355 22 27.6 56 07 41.5 83 53 31.5	175 22 30.9 226 06 47.6 263 52 36.3	John Cove Big River	2201.7 3940.1 2927.6	3.342760 3.595502 3.466517
Eagle's Nest 1871	30 24 04.199 86 49 52.898	129.3 1412.0	47 16 16.4 88 17 01.7	227 15 29.7 268 16 11.7	John Bluff	3350.8 2639.6	3.525152 3.421545
Tuck 1871	30 23 08.326 86 48 34.634	256.4 924.7	83 04 43.3 129 28 32.5	263 03 17.1 309 27 52.9	John Eagle's Nest	4584.5 2706.6	3.661288 3.432419
Long 1871	30 24 07.943 86 47 24.509	244.6 654.2	45 33 54.0 88 20 36.1	225 33 18.5 268 19 21.0	Tuck Eagle's Nest	2621.9 3962.7	3.418624 3.597995
Beach 1871	30 23 25.900 86 46 01.294	797.6 34.6	82 28 50.3 120 14 20.5	262 27 32.7 300 13 38.4	Tuck Long	4129.4 2571.2	3.615886 3.410131
Narrows 1871	30 24 12.019 86 45 08.469	370.1 226.1	44 48 05.9 88 01 48.6	224 47 39.2 268 00 39.8	Beach Long	2001.3 3633.5	3.301319 3.560330
Fender 1871	30 23 35.655 86 44 14.014	1098.0 374.1	84 01 12.5 127 36 39.8	264 00 18.2 307 36 12.2	Beach Narrows	2879.7 1834.9	3.459346 3.263620
Field 1871	30 24 30.241 86 42 42.116	931.2 1124.2	55 35 16.1 81 50 12.2	235 34 29.6 261 48 58.1	Fender Narrows	2973.7 3946.6	3.473302 3.596226
Surf 1871	30 23 41.903 86 41 53.980	1290.3 1441.0	87 03 50.8 139 12 05.6	267 02 39.9 319 11 41.2	Fender Field	3743.3 1966.4	3.573249 3.296666
Kitrel 1871	30 24 22.747 86 41 31.225	700.5 833.5	25 46 46.9 96 57 29.4	205 46 35.4 276 56 53.5	Surf Field	1396.7 1906.2	3.145111 3.280177
Cut 1871	30 23 46.038 86 40 21.062	1417.7 562.2	87 04 04.3 121 07 04.3	267 03 17.3 301 06 28.8	Surf Kitrel	2483.7 2187.6	3.395107 3.339970



## SANTA ROSA SOUND—Continued

Station	Latitude and longitude	Seconds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Principal points—Contd</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
Rogers	30 24 23.009	708.5	56 13 30.7	236 12 58.4	Cut	2047.6	3.311249
1871	86 39 17.303	461.8	89 52 48.4	269 51 40.6	Kitrel	3574.7	3.553239
Pirate	30 23 50.096	1542.6	87 16 41.5	267 15 51.8	Cut	2625.2	3.419161
1871	86 38 42.833	1143.4	137 45 58.7	317 45 41.3	Rogers	1368.9	3.136363
Davis	30 24 16.042	494.0	57 58 03.5	237 57 39.3	Pirate	1506.2	3.177789
1871	86 37 55.001	1468.2	95 34 59.8	275 34 18.2	Rogers	2207.3	3.343865
Small	30 23 50.311	1549.3	89 47 46.4	269 47 11.9	Pirate	1821.3	3.260381
1871	86 37 34.607	923.8	145 30 31.8	325 30 21.5	Davis	961.3	2.982870
Payne	30 24 12.911	397.6	46 35 20.4	226 35 06.4	Small	1012.6	3.005440
1871	86 37 07.051	188.2	94 18 39.5	274 18 15.2	Davis	1283.6	3.108414
Gulf	30 23 45.860	1412.2	95 43 38.9	275 43 13.0	Small	1374.3	3.138083
1871	86 36 43.382	1158.1	142 49 14.6	322 49 02.6	Payne	1045.5	3.019322
Burlison	30 24 03.818	117.6	51 27 21.9	231 27 08.8	Gulf	887.4	2.948122
1871	86 36 17.382	464.0	101 55 42.5	281 55 17.4	Payne	1355.1	3.131965
Entrance 2	30 19 31.358	965.6	85 00 28.6	264 59 26.3	Clapps Woods 2	3310.1	3.519847
1910	87 11 34.740	928.1	165 44 13.7	345 43 54.8	Fair Point 1910	4066.3	3.609197
Deer Point beacon	30 20 23.799	732.8	32 21 31.6	212 21 12.2	Entrance 2	1911.6	3.281391
1910	87 10 56.442	1507.6	66 14 08.2	246 12 46.5	Clapps Woods 2	4721.0	3.674036
			93 04 34.1	273 02 00.1	Navy Yard wharf	8149.3	3.911118
			138 58 03.0	318 57 24.7	Fair Point 1910	3083.9	3.489100
Grassy Point 2	30 21 05.519	169.9	45 38 47.1	225 37 51.0	Entrance 2	4147.0	3.617732
1910	87 09 43.742	1168.2	56 30 55.2	236 30 18.5	Deer Point beacon	2328.3	3.367033
Quarantine	30 20 20.835	641.6	66 03 10.1	246 02 05.3	Entrance 2	3752.2	3.574282
1910	87 09 26.376	704.5	92 10 43.4	272 09 57.9	Deer Point beacon	2407.5	3.381558
			161 22 21.9	341 22 13.1	Grassy Point 2	1452.0	3.161980
Bald	30 21 55.719	1715.8	49 31 42.6	229 30 37.8	Quarantine	4500.6	3.653273
1910	87 07 18.197	485.9	68 19 21.5	248 18 07.9	Grassy Point 2	4182.9	3.621482
Sharp Point	30 20 29.462	907.2	86 04 52.7	266 03 39.5	Quarantine	3877.1	3.588504
1910	87 07 01.565	41.8	104 23 19.3	284 21 57.3	Grassy Point 2	4471.6	3.650461
			170 30 26.1	350 30 17.7	Bald	2693.0	3.430235
Creek 2	30 22 26.645	820.5	38 46 04.1	218 45 09.3	Sharp Point	4627.5	3.665346
1910	87 05 13.082	349.3	74 05 56.2	254 04 53.0	Bald	3473.9	3.540822
Range 2	30 20 43.699	1345.6	83 04 52.0	263 03 43.8	Sharp Point	3634.3	3.560425
1910	87 04 46.490	1241.7	118 42 20.7	298 41 04.2	Bald	4618.8	3.664528
			167 22 28.8	347 22 15.4	Creek 2	3248.6	3.511692
Marsh 2	30 22 40.491	1246.8	33 06 38.3	213 05 53.9	Range 2	4293.3	3.632788
1910	87 03 18.683	498.8	82 03 42.1	262 02 44.3	Creek 2	3084.2	3.489136
Sand Hill 2	30 21 31.515	970.4	80 16 41.4	260 15 16.7	Bower	4543.0	3.657343
1910	86 59 52.664	1406.4	111 07 31.3	291 05 47.2	Marsh 2	5897.1	3.770635
Ranch 2	30 23 13.216	407.0	10 00 18.7	190 00 08.2	Sand Hill 2	3180.0	3.502432
1910	86 59 31.976	853.7	52 13 24.4	232 11 49.2	Bower	6364.2	3.803743
			80 33 49.1	260 31 54.5	Marsh 2	6136.1	3.787896
Agassiz 2	30 21 55.692	1714.9	77 19 49.5	257 18 46.9	Sand Hill 2	3392.1	3.530474
1910	86 57 48.736	1301.4	130 53 59.7	310 53 07.5	Ranch 2	3646.6	3.561882
Two Points 2	30 23 29.758	916.3	356 10 57.0	176 11 00.6	Agassiz 2	2903.0	3.462847
1910	86 57 55.974	1494.3	40 33 45.0	220 32 45.9	Sand Hill 2	4792.2	3.680534
			78 45 58.0	258 45 09.4	Ranch 2	2613.1	3.417154
Deserted 2	30 23 45.586	1403.7	53 23 18.7	233 21 52.5	Agassiz 2	5672.5	3.753777
1910	86 54 58.222	1554.2	84 08 52.4	264 07 22.5	Two Points 2	4770.2	3.678538
Peak 2	30 22 15.747	484.9	81 37 02.3	261 35 43.1	Agassiz 2	4230.6	3.626400
1910	86 55 12.001	320.5	117 30 40.9	297 29 18.0	Two Points 2	4935.6	3.693342
			187 34 25.7	7 34 32.7	Deserted 2	2790.8	3.445723
Cove 2	30 22 37.473	1153.9	79 12 49.6	259 11 43.1	Peak 2	3571.7	3.552876
1910	86 53 00.603	16.1	123 44 54.0	303 43 54.5	Deserted 2	3776.2	3.577059
Big River 2	30 23 52.152	1605.9	346 02 11.4	166 02 22.2	Cove 2	2369.6	3.374677
1910	86 53 22.018	587.8	44 41 42.6	224 40 46.9	Peak 2	4175.5	3.620710
			85 30 19.3	265 29 30.6	Deserted 2	2576.1	3.410967
John 2	30 23 01.941	59.8	72 58 54.2	252 58 07.6	Cove 2	2573.4	3.410510
1910	86 51 28.442	759.3	117 01 34.1	297 00 36.7	Big River 2	3403.6	3.531933
Bluff 2	30 24 02.383	73.4	357 09 42.9	177 09 44.6	John 2	1863.5	3.270327
1910	86 51 31.898	851.5	42 10 26.9	222 09 42.0	Cove 2	3527.7	3.547491
			83 53 24.8	263 52 29.1	Big River 2	2956.4	3.470766
Eagle's Nest 2	30 24 05.531	170.3	52 41 15.5	232 40 26.8	John 2	3229.9	3.509188
1910	86 49 52.224	1394.1	87 55 14.1	267 54 23.7	Bluff 2	2662.4	3.425280
Tuck 2	30 23 10.109	311.3	87 02 16.2	267 00 44.5	John 2	4846.6	3.685436
1910	86 48 27.154	724.9	108 05 19.1	288 03 45.7	Bluff 2	5187.9	3.714994
			126 55 47.7	306 55 04.7	Eagle's Nest 2	2840.8	3.453436

## SANTA ROSA SOUND—Continued.

Station	Latitude and longitude	Sec-onds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Principal points—Contd</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
Long 2	30 24 09.176	282.6	42 24 48.3	222 24 16.8	Tuck 2	2463.4	3.391534
1910	86 47 24.921	665.3	88 22 31.0	268 21 16.5	Eagle's Nest 2	3933.6	3.594795
Beach 2	30 23 25.021	770.5	82 29 13.8	262 28 07.9	Tuck 2	3507.7	3.545022
1910	86 46 16.897	451.1	126 49 44.7	306 49 10.3	Long 2	2268.5	3.355742
Narrows 2	30 24 13.459	414.4	54 20 00.9	234 19 21.5	Beach 2	2557.8	3.407867
1910	86 44 59.069	1576.5	88 04 12.1	268 02 58.3	Long 2	3895.8	3.590592
Fender 2	30 23 35.223	1084.6	84 23 49.8	264 22 49.2	Beach 2	3213.1	3.506925
1910	86 44 17.117	457.0	136 26 36.1	316 26 14.9	Narrows 2	1624.8	3.210789
Field 2	30 24 28.823	887.5	57 55 20.3	237 54 30.4	Fender 2	3107.3	3.492382
1910	86 42 38.492	1027.4	82 49 23.8	262 48 12.7	Narrows 2	3781.8	3.577701
Surf 2	30 23 42.935	1322.1	86 35 31.6	266 34 16.3	Fender 2	3982.5	3.600160
1910	86 41 48.200	1286.7	136 28 13.2	316 27 47.8	Field 2	1949.1	3.289831
Kitrel 2	30 24 23.052	709.8	6 43 17.2	186 43 14.4	Surf 2	1243.9	3.094773
1910	86 41 42.746	1141.0	96 48 54.3	276 48 26.1	Field 2	1498.6	3.175671
Cut 2	30 23 54.870	1689.6	81 06 03.4	261 05 18.9	Surf 2	2374.1	3.375492
1910	86 40 20.338	542.9	111 32 07.2	291 31 25.5	Kitrel 2	2364.7	3.373782
Rogers 2	30 24 23.411	720.9	62 28 33.1	242 28 01.1	Cut 2	1901.5	3.279107
1910	86 39 17.167	458.2	89 50 49.5	269 49 35.8	Kitrel 2	3885.9	3.589487
Pirate 2	30 23 49.443	1522.5	93 31 30.6	273 30 39.1	Cut 2	2723.3	3.435098
1910	86 38 38.513	1028.1	135 23 37.6	315 23 18.0	Rogers 2	1469.3	3.167097
Davis 2	30 24 16.213	499.2	54 47 45.0	234 47 22.8	Pirate 2	1429.8	3.155280
1910	86 37 54.748	1461.4	95 45 32.3	275 44 50.6	Rogers 2	2211.1	3.344610
Small 2	30 23 48.932	1506.8	90 27 46.6	270 27 09.3	Pirate 2	1967.5	3.293922
1910	86 37 24.811	662.4	136 25 56.2	316 25 41.1	Davis 2	1159.4	3.064250
			274 32 45.7	94 33 07.2	Gulf 2	1138.4	3.056289
Payne 2	30 24 12.323	379.5	45 12 46.9	225 12 33.1	Small 2	1022.4	3.009618
1910	86 36 57.629	1538.3	94 29 46.3	274 29 17.4	Davis 2	1529.4	3.184515
			283 12 45.5	103 13 06.0	Burlison 2	1113.5	3.046683
			333 12 54.8	153 13 02.5	Gulf 2	908.0	2.958073
Gulf 2	30 23 46.001	1416.5	246 15 39.8	66 16 23.5	Stevens 2	2516.9	3.400867
1910	86 36 42.305	1129.4	273 32 41.4	93 33 10.9	Exit 2	1557.6	3.192443
Burlison 2	30 24 04.057	124.9	306 33 39.9	126 33 56.6	Exit 2	1095.2	3.039488
1910	86 36 17.023	454.4	50 31 04.8	230 30 52.0	Gulf 2	874.4	2.941715

## PENSACOLA BAY

<i>Principal points</i>							
Bauer Point	30 19 32.363	996.6	54 02 30.9	234 01 33.2	Lagoon II	3772.9	3.576680
1889	87 21 03.043	81.3	89 27 57.4	269 27 06.8	Red Bluff	2680.5	3.428210
Lagoon I	30 18 48.164	1483.1	76 34 54.6	256 33 47.0	Lagoon II	3681.4	3.566008
1889	87 20 43.324	1157.5	112 37 04.0	292 36 03.5	Red Bluff	3474.3	3.540870
			158 50 30.2	338 50 20.3	Bauer Point	1459.4	3.164174
Fort Pickens	30 19 41.450	1276.4	72 44 57.7	252 43 17.9	Lagoon I	5528.7	3.742624
1856	87 17 25.702	686.6	87 15 21.5	267 13 31.8	Bauer Point	5812.8	3.764384
Pensacola L. H.	30 20 45.659	1406.0	319 32 42.5	139 33 14.4	Fort Pickens	2598.2	3.414678
1867	87 18 28.811	769.6	44 48 47.5	224 47 39.6	Lagoon I	5099.2	3.707501
			61 17 42.1	241 16 24.2	Bauer Point	4697.5	3.671869
Fort McRee flagstaff	30 19 32.379	997.1	190 51 08.1	10 51 16.3	Pensacola L. H.	2297.6	3.361274
1856	87 18 45.007	1202.4	262 29 00.2	82 29 40.3	Fort Pickens	2136.9	3.329781
Navy Yard wharf	30 20 37.902	1167.1	52 26 02.0	232 25 19.3	Fort Pickens	2850.8	3.454970
1860	87 16 01.112	29.7	65 16 05.6	245 14 41.8	Fort McRee flagstaff	4820.5	3.683093
			93 28 31.2	273 27 16.6	Pensacola L. H.	3952.1	3.596830
Pickens (U. S. E.)	30 19 33.889	1043.5	143 08 52.3	323 08 21.0	Pensacola L. H.	2762.0	3.441226
1901	87 17 26.789	715.6	229 15 21.5	49 16 04.8	Navy Yard wharf	3020.4	3.480069
Bight	30 18 59.676	1837.6	115 53 57.8	295 53 07.7	Fort Pickens	2945.7	3.469190
1870	87 15 46.508	1242.6	172 39 05.9	352 38 58.5	Navy Yard wharf	3049.7	3.484260
Pond	30 19 24.875	766.0	76 03 56.9	256 02 57.8	Bight	3220.4	3.507914
1870	87 13 49.515	1322.7	95 03 56.0	275 02 06.7	Fort Pickens	5797.8	3.763263
			122 36 59.6	302 35 53.1	Navy Yard wharf	4172.9	3.620443
Fair Point 2	30 21 41.855	1288.9	30 12 42.2	210 11 55.8	Pond	4880.7	3.688479
1870	87 12 17.584	469.7	48 11 22.0	228 09 36.5	Bight	7488.8	3.874411
			65 46 07.9	245 43 32.3	Fort Pickens	9026.2	3.955505
			71 45 32.5	251 43 39.6	Navy Yard wharf	6286.2	3.798387
Lagoon	30 20 45.087	1388.4	273 42 06.7	93 43 11.2	Navy Yard wharf	3418.5	3.533834
1856	87 18 08.833	235.9	329 32 41.7	149 33 03.5	Fort Pickens	2273.1	3.356627



## TRIANGULATION ALONG THE WEST COAST OF FLORIDA.

53

## PENSACOLA BAY—Continued

Station	Latitude and longitude	Sec- onds in meters	Azimuth	Back azimuth	To station	Distance	Loga- rithm
<i>Principal points—Contd</i>							
Fort McRee 1856	° ' "		° ' "	° ' "		<i>Meters</i>	
	30 19 32.294	994.4	203 08 49.7	23 09 07.8	Lagoon	2437.8	3.387000
	87 18 44.712	1194.5	245 10 39.0	65 12 01.6	Navy Yard wharf	4814.5	3.682547
Warrington west base 1856			262 23 08.7	82 23 48.6	Fort Pickens	2129.4	3.328259
	30 20 55.098	1696.7	357 17 15.3	177 17 17.3	Fort Pickens	2270.4	3.356099
	87 17 29.724	793.8	38 09 25.3	218 08 47.4	Fort McRee	3242.5	3.510874
Warrington east base 1856							
	30 20 46.318	1426.3	41 52 44.2	221 52 10.3	Fort Pickens	2682.6	3.428550
	87 16 18.666	498.6	59 42 44.7	239 41 30.9	Fort McRee	4518.2	3.654968
Santa Rosa 2 1859			98 06 46.4	278 06 10.5	Warrington west base	1917.00	3.282623
	30 19 24.690	760.3	94 47 51.6	274 45 55.0	Fort Pickens	6191.2	3.791778
	87 13 34.751	928.4	119 58 45.4	299 57 31.5	Navy Yard wharf	4513.0	3.654468
Fair Point 1857							
	30 21 42.587	1311.4	25 09 07.3	205 08 29.6	Santa Rosa 2	4690.8	3.671249
	87 12 20.122	537.3	71 21 59.9	251 20 08.2	Navy Yard wharf	6229.0	3.794419
Bayou Grande 1856							
	30 22 59.292	1825.8	293 10 18.7	113 12 03.1	Fair Point	5999.0	3.778082
	87 15 46.645	1245.4	331 55 51.9	151 56 58.5	Santa Rosa 2	7488.4	3.874389
Barkley Point 1856							
	30 24 28.645	882.1	358 06 49.2	178 06 52.4	Fair Point	5116.2	3.708948
	87 12 26.429	705.4	62 46 30.3	242 44 49.0	Bayou Grande	6011.5	3.778982
Town Point 1856							
	30 22 13.021	401.0	58 19 16.6	238 18 47.9	Fair Point	1784.3	3.251469
	87 11 23.261	621.1	101 28 18.8	281 26 05.6	Bayou Grande	7175.4	3.855845
Emanuel Point 1856			158 00 55.7	338 00 23.7	Barkley Point	4503.9	3.653591
	30 25 18.040	555.5	8 25 32.8	188 25 16.8	Town Point	5759.5	3.760381
	87 10 51.656	1378.6	58 59 15.6	238 58 27.6	Barkley Point	2951.6	3.470055
Plantation Hill 1856							
	30 22 06.319	194.6	92 47 35.0	272 46 14.6	Town Point	4252.2	3.628612
	87 08 44.206	1180.4	126 28 11.1	306 26 18.6	Barkley Point	7376.0	3.867822
Town Point 2 1860			150 03 13.4	330 02 08.9	Emanuel Point	6813.9	3.833398
	30 22 12.740	392.3	188 09 39.2	8 09 54.5	Emanuel Point	5764.4	3.760751
	87 11 22.316	595.8	272 40 14.1	92 41 34.0	Plantation Hill	4226.6	3.625989
Barkley Point 2 1860							
	30 24 31.126	958.5	240 17 12.8	60 18 00.7	Emanuel Point	2915.2	3.464671
	87 12 26.526	707.9	306 54 02.8	126 55 55.3	Plantation Hill	7423.7	3.870621
Clapp's Woods 1889			338 04 54.6	158 05 27.1	Town Point 2	4593.2	3.662113
	30 19 23.462	722.4	95 09 21.9	275 07 25.5	Fort Pickens	6182.9	3.791190
	87 13 35.188	940.1	107 54 21.7	287 51 53.4	Pensacola L. H.	8241.5	3.916006
Fair Point 3 1889			120 28 06.0	300 26 52.3	Navy Yard wharf	4522.0	3.655328
	30 21 41.844	1288.5	25 38 52.7	205 38 14.0	Clapp's Woods	4726.7	3.674558
	87 12 18.605	496.8	80 06 01.7	260 02 54.6	Pensacola L. H.	10037.2	4.001611
Grande 1889			71 41 01.7	251 39 09.2	Navy Yard wharf	6260.2	3.796586
	30 22 40.140	1236.0	65 41 58.4	245 39 23.2	Fort Pickens	9001.2	3.954298
	87 15 59.137	1578.8	286 56 15.3	106 58 06.8	Fair Point 3	6156.2	3.789316
Chico 1889			327 34 56.6	147 36 09.3	Clapp's Woods	7173.5	3.855730
	30 23 42.197	1299.4	314 49 34.9	134 50 45.5	Fair Point 3	5256.2	3.720669
	87 14 38.203	1019.8	348 04 07.5	168 04 39.3	Clapp's Woods	8143.0	3.910784
Harbor-master 1890			48 31 00.1	228 30 19.2	Grande	2884.5	3.460075
	30 24 15.881	489.0	350 43 55.8	170 44 10.4	Fair Point 3	4806.0	3.681781
	87 12 47.589	1270.3	60 02 56.0	240 01 19.1	Grande	5902.6	3.771047
Town Point 3 1889			70 39 09.4	250 38 13.4	Chico	3129.6	3.495495
	30 22 11.222	345.6	62 33 24.7	242 32 51.7	Fair Point 3	1962.6	3.292822
	87 11 13.384	357.4	96 40 36.5	276 38 12.0	Grande	7681.7	3.885460
Hickory 1890			117 08 23.1	297 06 39.4	Chico	6144.3	3.788470
	30 23 09.140	281.4	146 46 26.6	326 45 39.0	Harbor-master	4589.2	3.661736
	87 07 29.575	789.5	73 23 52.4	253 21 59.2	Town Point 3	6236.2	3.794921
Emanuel Point 3 1890			103 37 50.9	283 35 10.0	Harbor-master	8734.8	3.941251
	30 25 17.157	528.3	305 45 43.6	125 47 27.3	Hickory	6742.9	3.828844
	87 10 54.515	1454.9	5 01 45.5	185 01 35.8	Town Point 3	5747.6	3.759489
Red Fish Point 3 1890			57 59 39.0	237 58 41.8	Harbor-master	3559.3	3.551368
	30 23 58.415	1798.8	67 37 43.6	247 36 33.8	Hickory	3985.0	3.600424
	87 05 11.548	308.2	92 33 42.6	272 29 51.8	Harbor-master	12185.3	4.085835
Sand String 1890			104 51 34.5	284 48 40.9	Emanuel Point 3	9469.9	3.976347
	30 26 46.197	1422.6	342 54 32.7	162 55 02.8	Red Fish Point 3	5405.2	3.732808
	87 06 11.056	295.0	17 24 49.5	197 24 09.8	Hickory	7004.7	3.845391
Magnolia Bluff 1891			70 05 42.8	250 03 19.3	Emanuel Point 3	8045.7	3.905564
	30 25 51.366	1581.7	43 38 38.1	223 36 05.1	Town Point 3	11696.9	4.068070
	87 10 26.041	694.9	256 02 43.0	76 04 52.2	Sand String	7010.3	3.845737
Trout Crawl 1891			292 29 07.7	112 31 46.9	Red Fish Point 3	9085.9	3.958368
	30 29 50.097	1542.7	316 40 15.7	136 41 45.0	Hickory	6865.9	3.836698
	87 05 55.347	1476.0	4 13 58.9	184 13 50.9	Sand String	5678.4	3.754224
Devils Point 2 1890			44 30 27.2	224 28 09.9	Magnolia Bluff	10304.8	4.013038
	30 29 28.065	864.2	353 50 16.9	173 50 39.0	Red Fish Point 3	10892.3	4.037121
	87 09 01.692	45.1	262 12 47.2	82 14 21.8	Trout Crawl	5015.6	3.700325
			317 35 09.1	137 36 35.6	Sand String	6750.1	3.829309
			18 38 27.9	198 37 45.1	Mangolia Bluff	7042.1	3.847703
			328 48 46.6	148 50 43.2	Red Fish Point 3	11863.8	4.074226

## PENSACOLA BAY—Continued

Station	Latitude and longitude	Sec- onds in meters	Azimuth	Back azimuth	To station	Distance	Loga- rithm
<i>Principal points—Contd</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
East Escambia 1891	30 31 58.567 87 07 54.647	1803.5 1456.8	321 11 26.8 21 05 51.7	141 12 27.4 201 05 17.7	Trout Crawl Devil's Point 2	5076.3 4967.3	3.705545 3.696124
West Escambia 1891	30 30 53.565 87 09 40.535	1649.4 1080.8	234 39 13.6 288 00 48.1 338 31 19.8	54 40 07.3 108 02 42.4 158 31 39.5	East Escambia Trout Crawl Devil's Point 2	3460.6 6314.7 2829.3	3.539156 3.800356 3.451674
East Head 1891	30 34 49.805 87 10 21.428	1533.7 571.0	323 25 09.2 351 28 33.6	143 26 23.8 171 28 54.4	East Escambia West Escambia	6565.7 7355.9	3.817281 3.866638
West Head 1891	30 32 39.078 87 11 00.663	1203.4 17.7	194 33 28.0 284 06 31.3 326 40 18.5	14 33 48.0 104 08 05.8 146 40 59.2	East Head East Escambia West Escambia	4159.2 5113.0 3888.5	3.619005 3.708679 3.589778
Gurley 1892	30 23 52.477 87 02 52.496	1615.9 1401.3	92 49 46.8 135 17 02.9	272 48 36.4 315 15 22.4	Red Fish Point 3 Sand String	3716.4 7529.8	3.570126 3.876783
White Point 3 1892	30 26 49.325 87 04 04.403	1518.9 117.5	340 34 57.4 18 48 28.0 88 22 34.2	160 35 33.8 198 47 54.0 268 21 30.0	Gurley Red Fish Point 3 Sand String	5774.0 5559.6 3380.6	3.761475 3.745044 3.529000
Rogers 1892	30 25 04.328 86 58 55.629	133.3 1484.7	70 43 46.0 111 26 46.9	250 41 46.1 291 24 10.5	Gurley White Point 3	6698.4 8851.4	3.825973 3.947012
Highland 1892	30 28 15.763 86 57 47.218	485.4 1259.6	17 12 34.9 45 09 30.3 75 12 37.0	197 12 00.2 225 06 55.7 255 09 25.8	Rogers Gurley White Point 3	6171.1 11493.2 10408.7	3.790360 4.060439 4.017395
Lowland 1894	30 26 27.107 86 57 15.581	834.7 415.8	46 20 00.8 165 50 38.6	226 19 10.1 345 50 22.5	Rogers Highland	3691.3 3450.7	3.567182 3.537908
Pond 1894	30 27 15.714 86 56 10.768	483.9 287.3	49 07 37.3 125 42 36.6	229 07 04.5 305 41 47.7	Lowland Highland	2287.1 3168.5	3.359282 3.500858
Guerrilla 1894	30 27 46.688 86 56 38.071	1437.6 1015.7	322 37 47.2 22 12 59.6	142 38 01.0 202 12 40.6	Pond Lowland	1200.1 2647.0	3.079230 3.422761
Middle beacon 1892	30 28 12.220 87 02 21.087	376.3 562.5	316 31 47.2 5 59 04.0 47 12 15.5	136 33 31.3 185 58 48.1 227 11 23.1	Rogers Gurley White Point 3	7970.5 8042.1 3756.7	3.901487 3.905372 3.574812
Escribano Point 2 1892	30 30 15.901 87 01 08.864	489.6 236.4	339 39 45.8 26 49 59.8 36 22 04.0	159 40 53.4 206 49 23.2 216 20 35.0	Rogers Middle beacon White Point 3	10231.7 4208.0 7898.6	4.009946 3.630221 3.897552
Lindsay 1892	30 30 05.419 87 02 49.443	166.9 1318.5	263 07 50.3 326 03 07.5 347 45 24.3 18 19 34.8	83 08 41.3 146 05 06.0 167 45 38.7 198 18 56.8	Escribano Point 2 Rogers Middle beacon White Point 3	2701.4 11174.6 3566.9 6960.9	3.431589 4.048233 3.552292 3.803517
Grass Point 2 1892	30 31 22.004 87 00 43.779	677.6 1167.2	18 11 28.8 54 52 09.5	198 11 16.0 234 51 05.7	Escribano Point 2 Lindsay	2142.6 4097.4	3.330948 3.612508
Eagle Point 2 1892	30 31 46.255 87 02 14.926	1424.4 397.9	287 04 36.3 327 39 33.4 16 30 41.0	107 05 22.6 147 40 06.9 196 30 23.5	Grass Point 2 Escribano Point 2 Lindsay	2542.1 3293.0 3238.6	3.405198 3.517592 3.510360
Weaver Mouth 1892	30 32 44.577 87 00 01.819	1372.7 48.5	23 44 50.3 63 09 44.8	203 44 29.0 243 08 37.2	Grass Point 2 Eagle Point 2	2777.9 3976.8	3.443715 3.599536
Robinson Point 2 1892	30 32 53.047 87 00 54.453	1633.5 1451.4	280 31 41.1 354 12 14.6 46 12 36.7	100 32 07.9 174 12 20.0 226 11 55.8	Weaver Mouth Grass Point 2 Eagle Point 2	1426.9 2818.0 2971.9	3.154403 3.449935 3.473028
Turtle Point 1892	30 33 29.432 87 00 33.198	906.4 884.8	328 48 12.4 26 49 21.6	148 48 28.4 206 49 10.8	Weaver Mouth Robinson Point 2	1614.7 1255.5	3.208094 3.098815
Yellow River 1892	30 33 48.067 86 59 26.724	1480.2 712.1	25 34 11.2 54 04 39.1 72 03 20.5	205 33 53.4 234 03 54.5 252 02 46.7	Weaver Mouth Robinson Point 2 Turtle Point	2167.3 2887.5 1862.2	3.335927 3.460516 3.270022
Bay Point 1892	30 34 11.015 87 00 08.598	339.2 229.1	302 20 30.1 356 07 00.0 26 58 44.1 27 06 44.1	122 20 51.4 176 07 03.5 206 58 20.8 207 06 31.6	Yellow River Weaver Mouth Robinson Point 2 Turtle Point	1320.8 2667.9 2694.1 1438.6	3.120844 3.426168 3.430408 3.157934
Ward's Basin 2 1892	30 34 39.101 86 50 11.789	1204.1 314.2	14 12 43.2 39 57 43.2 60 15 48.1	194 12 35.6 219 56 51.0 240 15 19.2	Yellow River Robinson Point 2 Bay Point	1621.1 4260.4 1743.4	3.209817 3.629450 3.241400
Peterson Point 2 1892	30 34 38.860 86 59 58.136	1196.6 1549.0	269 39 11.1 331 50 36.2 1 35 52.2 18 00 38.6	89 39 34.6 151 50 52.1 181 35 50.3 198 00 33.2	Ward's Basin 2 Yellow River Weaver Mouth Bay Point	1235.0 1774.0 3520.6 901.6	3.091658 3.248957 3.546616 2.955030
Shield's Point 1892	30 34 49.547 87 00 44.771	1525.7 1193.0	284 49 52.3 320 54 33.6	104 50 16.0 140 54 52.0	Peterson Point 2 Bay Point	1285.4 1528.7	3.109054 3.184331
Milligan 1892	30 35 10.611 87 01 04.174	326.8 111.2	299 03 20.7 321 05 44.5 321 26 39.1	119 03 54.3 141 06 12.7 141 26 48.8	Peterson Point 2 Bay Point Shield's Point	2012.9 2358.2 829.4	3.303832 3.372572 2.918787



## PENSACOLA BAY—Continued.

Station	Latitude and longitude	Sec- onds in meters	Azimuth	Back azimuth	To station	Distance	Loga- rithm
<i>Principal points—Contd</i>							
Last Point 1892	30 35 15.195	467.9	323 00 49.2	143 01 05.3	Peterson Point 2	<i>Meters</i> 1400.7	3.146348
	87 00 29.762	793.0	344 04 22.0	164 04 32.8	Bay Point	2055.2	3.312860
			26 51 20.7	206 51 13.0	Shield's Point	885.2	2.947065
			81 15 02.6	261 14 45.1	Milligan	927.6	2.967370
Clapps Woods 2 1910	30 19 21.988	677.4	108 22 47.5	288 20 20.7	Pensacola L. H.	8179.8	3.912741
	87 13 38.175	1019.9	121 29 10.8	301 27 58.6	Navy Yard wharf	4476.9	3.650976
Fair Point 1910 1910	30 21 39.340	1211.4	28 29 26.8	208 28 43.3	Clapp Woods 2	4812.0	3.682321
	87 12 12.255	327.3	65 19 41.1	245 17 02.2	Pickens (U. S. E.)	9246.6	3.965983
			72 49 03.1	252 47 07.4	Navy Yard wharf	6398.2	3.806056
			80 41 32.4	260 38 22.1	Pensacola L. H.	10191.5	4.008239
<i>Supplementary points</i>							
Fort McRee water tank 1910	30 19 34.256	1054.8	246 26 26.9	66 27 51.9	Navy Yard wharf	4905.6	3.690696
	87 18 49.470	1321.5	250 01 08.4	70 04 29.1	Fair Point 1910	11286.9	4.052576
			270 17 15.4	90 17 57.1	Pickens (U. S. E.)	2208.8	3.344150
Fort McRee Cut-off rear range light 1910	30 19 31.327	964.7	191 26 07.7	11 26 16.5	Pensacola L. H.	2335.2	3.368332
	87 18 46.146	1232.8	245 02 54.9	65 04 18.3	Navy Yard wharf	4861.7	3.686789
			267 51 48.5	87 52 28.6	Pickens (U. S. E.)	2121.4	3.326628
Caucus Cut front range light 1910	30 19 33.422	1029.2	189 05 32.0	9 05 38.7	Pensacola L. H.	2252.7	3.352701
	87 18 42.139	1125.7	245 12 37.2	65 13 58.5	Navy Yard wharf	4737.5	3.675546
			269 35 07.6	89 35 45.6	Pickens (U. S. E.)	2013.0	3.303836
Caucus Cut rear range light 1910	30 20 13.310	409.9	217 33 44.1	37 33 58.6	Pensacola L. H.	1256.7	3.099214
	87 18 57.494	1535.7	260 51 22.9	80 52 52.0	Navy Yard wharf	4771.7	3.678670
			280 28 25.4	100 31 06.7	Clapps Woods 2	8675.1	3.938276
			296 36 15.4	116 37 01.2	Pickens (U. S. E.)	2710.0	3.432973
Pensacola Bay front range light 1910	30 20 09.731	299.6	195 05 21.2	15 05 26.9	Pensacola L. H.	1145.8	3.059121
	87 18 39.979	1067.9	258 26 06.9	78 27 27.2	Navy Yard wharf	4331.2	3.636604
			299 26 24.0	119 27 01.0	Pickens (U. S. E.)	2245.1	3.351239
Fort Barrancas front range light 1910	30 20 43.352	1334.9	334 06 31.7	154 06 51.3	Pickens (U. S. E.)	2377.5	3.376128
	87 18 05.652	151.0	96 33 16.4	276 33 04.7	Pensacola L. H.	622.6	2.794220
			272 52 45.3	92 53 48.2	Navy Yard wharf	3330.6	3.522520
Fort Barrancas range tower 1910	30 20 51.858	1596.9	292 15 22.7	112 17 30.5	Clapps Woods 2	7300.8	3.863371
	87 17 51.100	1364.8	344 51 47.4	164 51 59.7	Pickens (U. S. E.)	2487.1	3.395693
			79 16 27.3	259 16 08.3	Pensacola L. H.	1025.1	3.010775
Fort Pickens water tank 1910	30 19 41.678	1283.4	142 37 20.7	322 36 52.2	Pensacola L. H.	2479.4	3.394345
	87 17 32.457	867.0	247 01 04.6	67 03 46.4	Fair Point 1910	9288.1	3.967927
			234 38 08.2	54 38 54.3	Navy Yard wharf	2991.8	3.475928
			327 44 18.0	147 44 20.8	Pickens (U. S. E.)	283.6	2.452761
Barrancas wharf shed <sup>1</sup> 1891	30 20 41.38	1274.1	291 38 49	111 40 43	Clapps Woods	6499	3.81287
	87 17 21.32	569.3	3 38 02	183 38 00	Fort Pickens	1849	3.26693
Revenue flagstaff <sup>1</sup> 1891	30 20 44.50	1370.3	294 06 10	114 07 55	Clapps Woods	6107	3.78583
	87 17 03.86	103.0	16 43 49	196 43 38	Fort Pickens	2027	3.30691
Fort Barrancas barracks flagstaff 1891	30 20 59.508	1832.4	260 59 29.6	81 02 05.5	Fair Point 3	8345.5	3.921451
	87 17 27.263	728.1	295 29 22.2	115 31 19.4	Clapps Woods	6868.4	3.836855
			359 00 23.4	179 00 24.2	Fort Pickens	2404.0	3.380933
Warrington National ceme- tery flagstaff 1891	30 21 12.026	370.3	221 20 07.3	41 21 24.3	Chico	6159.6	3.789553
	87 17 10.596	283.0	263 15 50.0	83 18 17.6	Fair Point 3	7851.7	3.894964
			300 08 30.2	120 10 19.1	Clapps Woods	6654.4	3.823112
Warrington Catholic Church spire 1891	30 20 46.380	1428.2	255 39 23.6	75 41 30.2	Fair Point 3	6902.2	3.838990
	87 16 29.016	774.9	298 47 38.3	118 49 06.1	Clapps Woods	5299.0	3.724192
			37 08 27.4	217 07 58.8	Fort Pickens	2508.0	3.399333
Commandant's cupola 1891	30 20 55.021	1694.2	256 38 17.2	76 40 12.2	Fair Point 3	6246.2	3.795615
	87 16 06.173	164.9	304 56 43.7	124 58 00.0	Clapps Woods	4920.8	3.692036
			43 09 48.6	223 09 08.4	Fort Pickens	3105.6	3.492146
Navy Yard flagstaff 1891	30 20 43.636	1343.7	253 44 45.8	73 46 42.2	Fair Point 3	6410.0	3.806856
	87 16 09.044	241.6	300 58 58.0	121 00 15.7	Clapps Woods	4794.3	3.680726
			46 55 26.8	226 54 48.0	Fort Pickens	2803.5	3.447696
Navy Yard tallest big chim- ney 1910	30 20 47.642	1467.0	334 46 22.2	154 46 24.9	Navy Yard wharf	3315.3	3.520521
	87 16 06.401	171.0	43 24 02.2	223 23 21.6	Pickens (U. S. E.)	3125.4	3.494910
			89 05 25.5	269 04 13.6	Pensacola L. H.	3804.0	3.580245
Navy Yard water tank 1910	30 20 50.669	1560.3	303 28 43.5	123 30 01.6	Clapps Woods 2	4948.9	3.694506
	87 16 12.688	338.9	39 56 25.9	219 55 48.5	Pickens (U. S. E.)	3083.4	3.489033
			87 34 46.9	267 33 38.1	Pensacola L. H.	3638.9	3.560971
Navy Yard derrick 1891	30 20 38.609	1188.9	251 40 45.4	71 42 36.8	Fair Point 3	6199.7	3.792368
	87 15 58.995	1575.7	301 03 14.2	121 04 26.8	Clapps Woods	4484.5	3.651715
			52 46 24.0	232 45 40.3	Fort Pickens	2908.9	3.463736
Life Saving station flagstaff 1891	30 19 02.810	86.5	139 29 32.8	319 28 45.5	Navy Yard wharf	3851.6	3.585637
	87 14 27.445	733.2	159 54 24.2	339 53 37.9	Grande	7126.2	3.852857
			215 05 17.7	35 06 22.8	Fair Point 3	5985.4	3.777090

<sup>1</sup> No check on this position.

## PENSACOLA BAY—Continued

Station	Latitude and longitude	Sec- onds in meters	Azimuth	Back azimuth	To station	Distance	Loga- rithm
<i>Supplementary points—Contd</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
Fair Point beacon 1910	30 21 51.786 87 12 40.690	1594.6 1086.6	18 24 52.6 66 59 10.1 77 40 13.7	198 24 23.5 246 57 28.8 257 37 17.8	Clapps Woods 2 Navy Yard wharf Pensacola L. H.	4861.5 5816.0 9517.4	3.686771 3.764625 3.978516
Marine railroad stack 1891	30 22 08.086 87 11 13.194	249.0 352.3	65 10 42.4 97 23 10.3 117 54 47.9	245 10 09.3 277 20 45.7 297 53 04.2	Fair Point 3 Grande Chico	1924.6 7698.6 6193.4	3.284333 3.886412 3.791928
Chico flagstaff 1891	30 23 59.458 87 14 23.508	1830.9 627.4	303 16 33.8 321 47 22.9 351 21 47.9	123 18 09.9 141 48 26.1 171 22 12.3	Town Point 3 Fair Point 3 Clapps Woods	6072.4 5392.4 8596.1	3.783361 3.731783 3.934303
Chico white chimney 1891	30 24 00.735 87 14 22.194	22.6 592.4	303 46 06.3 322 20 24.0 351 37 58.2	123 47 41.8 142 21 26.5 171 38 22.0	Town Point 3 Fair Point 3 Clapps Woods	6064.9 5401.8 8629.8	3.782822 3.732542 3.936002
Clump 1891	30 23 52.64 87 14 44.19	1620.9 1179.6	299 00 38 316 00 28	119 02 25 136 01 42	Town Point 3 Fair Point 3	6436 5597	3.80865 3.74798
Pensacola: Stevedores flagstaff 1891	30 24 23.530 87 13 03.317	724.6 88.6	346 30 50.5 5 15 53.2 55 51 49.2 63 19 36.8	166 31 13.1 185 15 37.1 235 50 20.3 243 18 48.8	Fair Point 3 Clapps Woods Grande Chico	5119.9 9279.1 5671.6 2834.7	3.709263 3.967506 3.753707 3.452510
Scandinavian Church spire 1891	30 24 17.615 87 12 47.968	542.4 1280.4	327 01 04.1 350 42 57.3 69 40 18.4	147 01 52.0 170 43 12.1 249 39 22.6	Town Point 3 Fair Point 3 Chico	4639.4 4860.3 3138.3	3.666465 3.686665 3.496690
Post Office north flagstaff 1891	30 24 33.729 87 12 53.490	1038.6 1427.8	328 39 02.5 350 01 03.8 60 25 24.9	148 39 53.1 170 01 21.4 240 24 31.9	Town Point 3 Fair Point 3 Chico	5138.0 5374.2 3214.2	3.710793 3.730311 3.507073
Episcopal Church spire 1856	30 24 32.514 87 12 36.670	1001.2 978.8	354 45 19.3 57 23 12.1 64 28 46.3	174 45 28.4 237 21 29.7 244 27 44.8	Fair Point 3 Grande Chico	5277.5 6417.9 3595.2	3.722429 3.807390 3.555722
Colored Church spire 1856	30 24 39.656 87 12 38.316	1221.1 1022.7	354 30 31.5 8 52 09.3 55 32 42.2 61 04 14.3	174 30 41.4 188 51 40.4 235 31 00.6 241 03 13.6	Fair Point 3 Clapps Woods Grande Chico	5500.06 9854.3 6502.7 3656.8	3.740410 3.993625 3.813094 3.563096
Wright's mill chimney <sup>1</sup> 1891	30 24 43.29 87 12 11.36	1332.9 303.1	248 29 18 291 03 26	68 32 21 111 05 49	Sand String Hickory	10333 8061	4.01424 3.90641
Muscogee outer gable <sup>1</sup> 1891	30 24 37.36 87 11 42.86	1150.4 1143.8	276 31 18 291 52 14	96 34 36 111 54 22	Red Fish Point 3 Hickory	10514 7287	4.02176 3.86253
Ice Works tall chimney 1891	30 24 53.484 87 12 45.946	1647.1 1226.3	352 56 48.2 7 22 33.0 51 29 15.5	172 57 02.0 187 22 08.1 231 27 37.8	Fair Point 3 Clapps Woods Grande	5946.1 10247.0 6592.2	3.774234 4.010598 3.819029
Railroad station cupola 1891	30 25 03.088 87 12 48.599	95.1 1297.1	334 20 19.5 352 38 06.6 6 47 12.8	154 21 07.7 172 38 21.8 186 46 49.3	Town Point 3 Fair Point 3 Clapps Woods	5871.1 6248.5 10531.9	3.768717 3.795773 4.022505
Herron's house cupola 1891	30 25 08.871 87 13 01.705	273.2 45.5	332 07 51.4 349 45 56.9 4 48 26.2	152 08 46.2 169 46 18.7 184 48 09.3	Town Point 3 Fair Point 3 Clapps Woods	6187.6 6478.0 10673.7	3.791524 3.811440 4.028313
Standpipe 1891	30 25 17.717 87 13 03.286	545.6 87.7	349 49 26.3 28 52 04.5 44 03 49.0	169 49 48.9 208 50 34.6 224 02 20.1	Fair Point 3 Navy Yard wharf Grande	6753.6 9837.8 6751.3	3.829534 3.992898 3.829389
Wells' chimney <sup>1</sup> 1891	30 25 21.15 87 12 07.45	651.2 198.8	298 42 16 346 08 01	118 44 36 166 08 28	Hickory Town Point 3	8458 6024	3.92727 3.77987
Oak 1891	30 25 11.891 87 11 43.278	366.1 1155.1	299 09 00.8 351 50 05.7 8 17 55.1	119 11 09.1 271 50 20.8 188 17 37.2	Hickory Town Point 3 Fair Point 3	7755.6 5620.3 6536.4	3.889618 3.749760 3.815337
Jose <sup>1</sup> 1891	30 25 19.14 87 11 08.15	589.3 217.4	304 26 21 1 23 05	124 28 11 181 23 02	Hickory Town Point 3	7076 5788	3.84976 3.76254
Magnolia wharf <sup>1</sup> 1890	30 25 55.71 87 10 18.13	1715.5 483.8	318 43 59 12 02 57	138 45 25 192 02 29	Hickory Town Point 3	6823 7068	3.83395 3.84931
Magnolia wharf flagstaff 1890	30 25 55.800 87 10 18.347	1718.3 489.6	197 22 03.3 256 44 53.1 318 42 44.5	17 22 42.0 76 46 58.4 138 44 08.0	Devils Point 2 Sand String Hickory	6848.8 6778.6 6828.7	3.835613 3.831142 3.834336
Bohemia shingle mill stack 1891	30 28 45.872 87 09 45.229	1412.6 1206.4	221 47 02.9 252 06 19.1 320 27 28.9	41 47 24.9 72 08 15.7 140 29 47.5	Devils Point 2 Trout Crawl Red Fish Point 3	1742.6 6442.1 11475.4	3.241186 3.809025 4.059766
Bohemia round brick chim- ney 1891	30 28 49.967 87 09 44.706	1538.7 1192.4	224 21 24.8 253 08 35.2 303 45 21.3 320 54 33.1	44 21 46.6 73 10 31.5 123 47 09.6 140 56 51.5	Devils Point 2 Trout Crawl Sand String Red Fish Point 3	1640.9 6391.1 6856.4 11564.1	3.215072 3.805574 3.836098 4.063112

<sup>1</sup> No check on this position.



## PENSACOLA BAY—Continued

Station	Latitude and longitude	Seconds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Supplementary points—Contd</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
Devils Point red beacon 1891	30 29 17.677 87 08 03.067	544.3 81.8	101 33 59.4 182 35 38.7 253 39 21.3 327 20 59.2 335 01 32.2	281 33 29.7 2 35 43.0 73 40 26.2 147 21 56.0 155 02 58.5	Devils Point 2 East Escambia Trout Crawl Sand String Red Fish Point 3	1595.9 4959.5 3549.4 5539.5 10844.2	3.203002 3.695436 3.550159 3.743474 3.035196
Devils Point old beacon 1891	30 29 27.387 87 08 25.331	843.3 675.5	91 14 12.2 189 57 54.9 260 04 20.4 324 10 31.2	271 13 53.8 9 58 10.5 80 05 36.6 144 11 39.4	Devils Point 2 East Escambia Trout Crawl Sand String	969.9 4726.7 4060.5 6121.0	2.986746 3.674562 3.608582 3.786822
Escambia trestle northeast chimney 1891	30 31 15.145 87 09 03.670	466.4 97.9	55 56 24.2 233 59 26.9 297 31 51.1 359 05 00.4	235 56 05.5 54 00 01.9 117 33 26.7 179 05 01.4	West Escambia East Escambia Trout Crawl Devils Point 2	1186.5 2274.6 5663.4 3297.8	3.074251 3.356912 3.753080 3.518224
Skinner's sawmill stack <sup>1</sup> 1891	30 31 11.91 87 10 28.15	366.7 750.6	162 06 32 250 38 38	342 06 18 70 39 56	West Head East Escambia	2821 4337	3.45036 3.63722
Skinner's planing mill stack <sup>1</sup> 1891	30 31 11.62 87 10 21.34	357.9 568.8	158 43 57 249 42 07	338 43 37 69 43 21	West Head East Escambia	2890 4169	3.46090 3.62006
Lone chimney <sup>1</sup> 1891	30 32 00.00 87 11 21.75	0.0 579.8	205 01 07 270 25 58	25 01 18 90 27 43	West Escambia East Escambia	1329 5521	3.12356 3.74203
Wreck 1891	30 32 23.966 87 10 39.683	738.0 1057.7	186 10 53.4 280 04 08.4 330 28 00.0	6 11 02.7 100 05 32.3 150 28 30.0	East Head East Escambia West Escambia	4517.2 4468.3 3199.4	3.654873 3.650146 3.505062
Leaning chain house, higher gable 1891	30 32 24.216 87 09 48.517	745.7 1293.3	103 23 32.0 168 55 58.7 284 34 36.6 355 38 24.3	283 22 55.4 348 55 42.0 104 35 34.4 175 38 28.4	West Head East Head East Escambia West Escambia	1976.8 4568.3 3136.5 2799.6	3.295964 3.659750 3.496444 3.447092
Chain house, east gable 1891	30 33 03.976 87 09 42.456	122.4 1131.6	69 48 43.2 162 19 36.0 305 01 08.8 359 16 08.5	249 48 03.5 342 19 16.3 125 02 03.6 179 16 09.5	West Head East Head East Escambia West Escambia	2221.0 3420.4 3509.3 4016.2	3.346556 3.534073 3.545219 3.603812
White Point beacon 1892	30 26 01.529 87 02 42.044	47.1 1121.9	286 14 09.4 4 00 58.5 123 49 02.1	106 16 04.1 184 00 53.2 303 48 20.4	Rogers Gurley White Point 3	6293.9 3983.7 2644.9	3.798919 3.600287 3.422415
Escribano Point beacon 1892	30 31 13.913 87 01 44.412	428.4 1184.1	261 14 01.8 332 02 52.1 39 25 42.3 140 45 32.3	81 14 32.6 152 03 10.1 219 25 09.4 320 45 16.8	Grass Point 2 Escribano Point 2 Lindsay Eagle Point 2	1635.6 2022.3 2730.4 1286.0	3.213686 3.305844 3.436233 3.109225
Two Trees 1892	30 31 38.004 87 00 11.778	1170.3 314.0	59 59 40.5 153 47 36.4 187 22 40.2	239 59 24.3 333 47 14.8 7 22 45.3	Grass Point 2 Robinson Point 2 Weaver Mouth	985.2 2575.7 2067.2	2.993521 3.410889 3.315372
Catfish Point 1892	30 31 59.401 87 00 11.486	1829.2 306.2	36 46 57.6 145 16 10.0 190 29 36.1	216 46 41.2 325 15 48.2 10 29 41.0	Grass Point 2 Robinson Point 2 Weaver Mouth	1437.8 2010.1 1414.8	3.157704 3.303228 3.150697
Scaffold 1892	30 33 00.542 86 59 54.527	16.7 1453.4	23 24 02.8 58 34 28.9 81 46 53.8	203 23 37.8 238 33 17.6 261 46 23.4	Grass Point 2 Eagle Point 2 Robinson Point 2	3306.2 4386.3 1613.8	3.519333 3.642096 3.207860
Mill chimney 1892	30 34 10.819 87 00 07.007	333.2 186.7	303 07 39.4 357 01 09.8 27 50 10.8	123.07 59.9 177 01 12.4 207 49 46.6	Yellow River Weaver Mouth Robinson Point 2	1281.9 2659.3 2708.2	3.107854 3.424772 3.432685
Shingle mill stack <sup>1</sup> 1892	30 35 26.17 87 01 28.62	806.0 762.5	282 09 38 306 20 13	102 10 08 126 20 25	Last Point Milligan	1604 809	3.20527 2.90778
Oak <sup>1</sup> 1892	30 35 41.98 87 01 43.47	1292.7 1158.1	292 46 48 312 41 45	112 47 26 132.42 05	Last Point Milligan	2130 1424	3.32835 3.15365
Dry dock derriek 1892	30 36 05.303 87 01 33.748	163.2 899.1	312 08 48.3 330 46 35.5 334 55 36.2	132 09 20.8 150 47 00.4 154 55 51.2	Last Point Shields Point Milligan	2299.3 2672.9 1859.3	3.361592 3.426988 3.269361

## PERDIDO BAY.

<i>Principal points</i>							
Cotton (Ala.) 1889	30 16 20.852 87 34 02.802	642.1 74.9	74 02 25.4	254 00 48.9	Azimuth V	5321.57	3.726040
Perdido Range (Ala.) 1889	30 16 45.586 87 32 52.994	1403.6 1416.3	67 47 59.7	247 47 24.5	Cotton	2015.3	3.304332
Johnson (Ala.) 1889	30 17 36.265 87 32 45.835	1116.7 1224.8	6 59 25.1 41 32 26.0	186 59 21.5 221 31 47.2	Perdido Range Cotton	1572.2 3102.2	3.196512 3.491667
Perdido III 1889	30 16 56.892 87 30 49.652	1751.9 1327.0	83 58 47.7 111 20 14.9	263 57 45.5 291 19 16.3	Perdido Range Johnson	3314.8 3333.2	3.520460 3.522866

<sup>1</sup> No check on this position.

## PERDIDO BAY—Continued

Station	Latitude and longitude	Sec- onds in meters	Azimuth	Back azimuth	To station	Distance	Loga- rithm
<i>Principal points—Contd</i>							
	° ' "		° ' "	° ' "		Meters	
Bear Point (Ala.) 1889	30 18 03.401 87 30 52.452	104.7 1401.6	357 54 26.9 53 21 56.8 74 35 23.5	177 54 28.3 233 20 56.0 254 34 26.3	Perdido III Perdido Range Johnson	2049.3 4024.0 3142.9	3.311614 3.604663 3.497334
Perdido II 1889	30 17 18.074 87 28 53.751	556.6 1436.5	78 07 00.4 113 45 29.9	258 06 01.9 293 44 30.0	Perdido III Bear Point	3165.4 3465.5	3.500432 3.539767
Hummock 1889	30 18 50.531 87 28 40.795	1556.0 1090.0	6 56 02.1 44 32 50.4 67 35 26.3	186 55 55.6 224 31 45.4 247 34 19.9	Perdido II Perdido III Bear Point	2867.9 4909.3 3805.4	3.457571 3.691016 3.580397
Goat 1889	30 17 55.764 87 30 12.800	1717.1 342.0	63 13 40.7 102 31 03.3 235 32 35.8	243 12 19.9 282 30 43.3 55 33 22.2	Perdido Range Bear Point Hummock	4795.5 1085.3 2981.2	3.680836 3.035557 3.474390
Perdido I 1889	30 17 29.512 87 27 50.276	908.8 1343.5	78 16 32.2 151 35 11.1	258 16 00.2 331 34 45.6	Perdido II Hummock	1732.5 2836.6	3.238666 3.452796
Nelson 1889	30 18 49.862 87 26 51.527	1535.4 1376.6	32 23 53.0 49 08 07.2 72 48 13.0 90 24 43.2	212 23 23.4 229 07 05.6 252 46 31.5 270 23 48.1	Perdido I Perdido II Goat Hummock	2930.2 4319.1 5630.0 2919.4	3.466894 3.635394 3.750511 3.465300
Lagoon III 1889	30 17 50.644 87 25 17.671	1559.5 472.3	80 56 40.5 126 01 41.3	260 55 23.5 306 00 53.9	Perdido I Nelson	4129.6 3100.7	3.615911 3.491457
Piney 1889	30 18 47.178 87 25 03.147	1452.8 84.1	12 34 05.8 61 50 29.9 91 38 33.9	192 33 58.5 241 49 05.6 271 37 39.2	Lagoon III Perdido I Nelson	1783.5 5065.8 2896.8	3.251285 3.704652 3.461924
Lagoon II 1889	30 18 20.402 87 22 57.340	628.3 1532.2	76 16 40.5 103 47 26.0	256 15 29.7 283 46 22.5	Lagoon III Piney	3860.1 3461.1	3.586599 3.539209
Red Bluff 1889	30 19 31.541 87 22 43.376	971.3 1158.8	9 39 58.2 53 00 27.5 69 54 57.0	189 39 51.1 232 59 09.6 249 53 46.4	Lagoon II Lagoon III Piney	2222.1 5162.1 3976.2	3.346764 3.712828 3.599464
Inerarity west 1889	30 19 00.198 87 29 50.925	6.1 1360.5	16 24 57.5 43 13 54.1	196 24 46.5 223 13 23.1	Goat Bear Point	2068.4 2400.3	3.315637 3.380259
Rockwood (Ala.) 1889	30 18 32.651 87 30 52.836	1005.4 1411.7	242 50 48.8 316 42 50.6 359 20 48.0	62 51 20.0 136 43 10.8 179 20 48.2	Inerarity west Goat Bear Point	1858.9 1560.3 900.7	3.269265 3.193212 2.954603
Ross (Ala.) 1889	30 19 11.426 87 30 59.970	351.8 1602.2	280 36 39.3 331 55 09.6 350 55 47.7	100 37 14.1 151 35 33.4 170 55 51.3	Inerarity west Goat Rockwood	1876.7 2648.9 1209.1	3.273406 3.423062 3.082460
Red Bluff (Ala.) 1889	30 20 36.755 87 29 07.877	1131.8 210.4	312 05 37.2 347 31 34.9 21 08 51.7 30 37 00.6 48 44 27.3	132 06 46.0 167 31 48.6 201 08 30.1 210 36 08.0 228 43 30.9	Nelson Hummock Inerarity west Bear Point Ross	4909.3 3350.0 3187.9 5486.7 3983.7	3.691018 3.525041 3.503499 3.739310 3.600282
Manuel (Ala.) 1889	30 21 37.485 87 27 50.363	1154.3 1345.0	343 03 41.5 14 41 11.8 33 37 41.6 36 26 05.0 47 54 45.5	163 04 11.2 194 40 46.3 213 36 40.8 216 24 33.1 227 54 06.4	Nelson Hummock Inerarity west Bear Point Red Bluff	5395.5 5314.5 5816.2 8192.5 2789.8	3.732035 3.725466 3.764636 3.913417 3.445566
Dupont 1889	30 21 56.308 87 26 25.998	1733.9 694.2	6 46 30.4 32 11 43.3 45 16 51.2 55 15 55.4 60 28 26.2 75 34 41.1	186 46 17.5 212 10 35.3 225 15 07.9 235 13 37.3 240 27 04.5 255 33 58.5	Nelson Hummock Inerarity west Ross Red Bluff Manuel	5781.6 6739.3 7705.1 8906.5 4969.0 2326.3	3.762045 3.829904 3.886777 3.949709 3.696270 3.366660
Suarez (Ala.) 1889	30 22 54.134 87 27 02.933	1667.0 78.3	331 01 00.5 28 13 14.2	151 01 19.2 208 12 50.2	Dupont Manuel	2035.5 2678.6	3.308871 3.427900
Nix 1890	30 23 26.709 87 25 43.573	822.5 1163.3	22 08 42.8 45 11 45.9 64 40 14.9	202 08 21.4 225 10 41.9 244 39 34.8	Dupont Manuel Suarez	3005.4 4772.1 2344.2	3.477898 3.678710 3.369997
Chagrin (Ala.) 1890	30 24 16.026 87 26 13.626	493.5 363.7	332 09 04.2 4 23 27.5 27 34 02.8	152 09 19.4 184 23 21.3 207 33 37.9	Nix Dupont Suarez	1717.5 4315.0 2844.6	3.234898 3.634981 3.454021
Cummings 1890	30 24 07.334 87 25 34.303	225.8 915.7	11 11 23.0 18 53 17.3 46 23 42.8 104 18 29.4	191 11 18.3 195 52 51.2 226 22 58.0 284 18 09.5	Nix Dupont Suarez Chagrin	1275.2 4264.2 3267.9 1083.2	3.105579 3.629840 3.514270 3.034723
Grassy (Ala.) 1890	30 25 23.150 87 23 58.484	712.9 1560.8	47 01 45.4 47 36 53.6 60 11 41.1	227 00 12.1 227 36 05.1 240 10 32.7	Suarez Cummings Chagrin	6730.4 3462.8 4157.2	3.828038 3.539430 3.618805
Double 1890	30 24 40.782 87 23 29.456	1255.8 786.1	72 50 02.2 80 08 34.8 149 17 57.2	252 48 59.0 260 07 11.8 329 17 42.5	Cummings Chagrin Grassy	3488.0 4447.8 1517.4	3.542575 3.648148 3.181088
River East 1890	30 27 13.511 87 22 57.941	416.0 1545.9	10 08 26.0 25 25 46.9	190 08 10.0 205 25 16.2	Double Grassy	4777.6 3762.8	3.679211 3.575510



## PERDIDO BAY—Continued

Station	Latitude and longitude	Sec- onds in meters	Azimuth	Back azimuth	To station	Distance	Loga- rithm
<i>Principal points—Contd</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
River West (Ala.) 1890	30 26 47.335 87 23 18.701	1457.6 499.0	214 29 39.8 4 12 46.5 22 16 21.6	34 29 50.3 184 12 41.0 202 16 01.3	River East Double Grassy	978.0 3907.5 2801.3	2.990337 3.591902 3.447353
Boom 1891	30 27 08.692 87 24 00.908	267.7 24.2	264 56 52.9 300 16 54.5	84 57 24.8 120 17 15.9	River East River West	1686.5 1304.1	3.226983 3.115308
Squid (Ala.) 1891	30 27 01.259 87 24 09.194	38.8 245.3	224 00 20.2 258 46 14.1 287 39 04.0	44 00 24.4 78 46 50.2 107 39 29.6	Boom River East River West	318.2 1938.1 1413.8	2.502711 3.287377 3.150387
Juniper (Ala.) 1891	30 27 14.003 87 24 29.765	431.2 796.1	281 59 28.5 305 33 50.7	101 59 43.1 125 34 01.1	Boom Squid	787.1 674.7	2.896016 2.829111
Hirse 1891	30 27 33.054 87 24 33.722	1017.8 809.6	310 35 32.3 326 14 25.8 349 47 53.6	130 35 48.9 146 14 38.2 169 47 55.6	Boom Squid Juniper	1152.9 1177.6 596.1	3.061798 3.071012 2.775302
Hard 1891	30 27 36.924 87 24 54.678	1137.0 1464.2	282 01 55.1 316 43 07.3	102 02 05.7 136 43 19.9	Hirse Juniper	571.6 969.5	2.757123 2.986559
Wire (Ala.) 1891	30 27 33.799 87 25 03.308	1040.8 88.2	247 18 57.4 271 39 46.8 304 15 34.5	67 19 01.8 91 40 01.8 124 15 51.5	Hard Hirse Juniper	249.5 789.7 1082.8	2.397139 2.897437 3.034553
Steamboat 1891	30 27 58.030 87 25 16.770	1787.0 447.4	317 47 48 334 17 52	137 47 59 154 17 58	Hard Wire	877.3 828.1	2.94317 2.91807
Roots (Ala.) 1891	30 28 08.606 87 25 44.957	265.0 1199.3	293 25 02 306 01 38 313 58 04	113 25 17 126 02 04 133 58 25	Steamboat Hard Wire	819.4 1658.6 1543.8	2.91350 3.21973 3.18858
Kee 1891	30 28 12.344 87 25 40.291	380.1 1074.8	305 05 16 311 52 11 320 15 54 47 14 16	125 05 28 131 52 33 140 16 11 227 14 13	Steamboat Hard Wire Roots	766.8 1634.1 1543.4 169.5	2.88467 3.21327 3.18848 2.22927
Alabama Cut-off (Ala.) 1891	30 28 28.393 87 25 54.199	874.3 1445.7	323 06 12 337 58 15	143 06 19 157 58 19	Kee Roots	618.0 657.3	2.79096 2.81776
Florida Cut-off 1891	30 28 32.796 87 25 45.342	1009.9 1209.5	347 55 25 359 12 35 60 08 43	167 55 28 179 12 35 240 08 39	Kee Roots Alabama Cut-off	644.1 745.0 272.4	2.80892 2.87214 2.43521
Titl (Ala.) 1891	30 28 45.514 87 26 09.699	1401.5 258.7	301 04 51 321 53 53	121 05 03 141 54 01	Florida Cut-off Alabama Cut-off	758.6 670.0	2.88000 2.82607
Bay 1891	30 28 46.825 87 26 05.496	1441.9 146.3	308 47 55 332 03 31 70 14 48	128 48 05 152 03 36 250 14 46	Florida Cut-off Alabama Cut-off Titl	689.4 642.5 119.4	2.83848 2.80786 2.07701
Log (Ala.) 1891	30 28 58.436 87 26 05.795	1799.4 154.6	358 40 41 14 39 52	178 40 41 194 39 50	Bay Titl	357.6 411.3	2.55345 2.61416
Goat 2 1911	30 17 56.004 87 30 15.868	1724.5 424.0	81 23 10.3 200 08 46.6 236 31 49.1 275 08 50.7	261 21 54.6 20 09 20.9 56 32 37.1 95 08 52.3	Johnson Red Bluff Hummock Goat	4053.3 5272.7 3045.1 82.32	3.607809 3.722035 3.483597 1.915505
Ross 2 1911	30 19 12.494 87 31 01.153	384.7 30.8	229 22 47.8 332 48 25.6	49 23 45.0 152 48 48.5	Red Bluff Goat 2	3996.0 2647.9	3.600537 3.422908
Inerarity west 2 1911	30 18 59.392 87 29 50.470	1828.9 1348.4	200 46 45.3 19 10 23.3 102 03 52.6	20 47 06.7 199 10 10.5 282 03 16.9	Red Bluff Goat 2 Ross 2	3206.7 2066.5 1931.0	3.506060 3.315236 3.285784
Bear Point 2 1911	30 18 03.558 87 30 54.114	109.6 1446.0	211 01 31.2 224 40 50.5 247 53 27.0 282 49 11.5 74 17 07.9	31 02 24.7 44 41 22.6 67 54 34.3 102 49 30.8 254 16 11.5	Red Bluff Inerarity west 2 Hummock Goat 2 Johnson	5505.3 2418.2 3844.7 1048.1 3101.5	3.740783 3.383490 3.584857 3.020404 3.491567
Inlet 1911	30 17 03.169 87 31 31.279	97.6 835.9	117 05 39.0 208 06 15.6 216 57 41.2 231 04 50.3	297 05 01.4 28 06 34.4 36 58 32.0 51 05 28.4	Johnson Bear Point 2 Inerarity west 2 Goat 2	2238.0 2108.1 4479.3 2590.0	3.349853 3.323900 3.651211 3.413300
Ala (Ala.) 1911	30 16 43.910 87 33 03.785	1352.1 101.2	196 34 10.7 234 42 08.7 256 30 18.4	16 34 19.7 54 43 14.1 76 31 05.0	Johnson Bear Point 2 Inlet	1682.0 4245.4 2542.5	3.225824 3.627921 3.405255
<i>Supplementary points</i>							
Main Shore 1 1871	30 19 30.375 87 21 04.028	935.3 107.6	240 46 42.7 269 02 18.7	60 48 01.1 89 03 28.9	Pensacola L. H. Fort McRee flagstaff	4750.2 3714.4	3.676711 3.569887
West Beach 2 1871	30 18 27.948 87 22 17.388	860.6 464.6	225 32 59.2 235 12 19.9 250 42 44.6	45 33 36.2 55 14 15.3 70 44 31.8	Main Shore 1 Pensacola L. H. Fort McRee flagstaff	2745.3 7434.2 6011.0	3.438589 3.871236 3.778946
North Range	30 16 41.715 87 32 39.470	1284.5 1054.9	95 56 19.8 174 13 02.7 250 04 14.9	275 56 07.6 354 12 59.5 70 04 49.3	Ala Johnson Inlet	653.4 1688.3 1938.5	2.815164 3.227452 3.287471

## PERDIDO BAY—Continued

Station	Latitude and longitude	Seconds in meters	Azimuth	Back azimuth	To station	Distance	Logarithm
<i>Supplementary points—Continued</i>							
	° ' "		° ' "	° ' "		<i>Meters</i>	
South Range	30 16 40.737	1254.4	98 21 02.3	278 20 49.8	Ala	673.0	2.829005
	87 32 38.872	1038.9	173 47 20.8	353 47 16.8	Johnson	1719.9	3.235515
			249 04 13.0	69 04 47.1	Inlet	1934.1	3.286472
Ono 1911	30 16 56.854	1750.7	64 56 47.7	244 56 31.6	Ala	941.1	2.973642
	87 32 31.886	852.2	162 55 29.5	342 55 22.4	Johnson	1269.5	3.103647
			231 49 17.5	51 50 06.8	Bear Point 2	3323.5	3.521597
Tarkill 1889	30 20 05.762	177.4	62 13 56.6	242 12 33.5	Hummock	4970.5	3.696398
	87 25 56.180	1500.7	78 22 18.9	258 19 45.7	Rosa	8286.1	3.918349
			100 34 16.5	280 32 39.7	Red Bluff	5208.5	3.716715
Bend 1890	30 22 34.644	1066.8	51 58 00.5	231 57 31.9	Dupont	1915.8	3.282353
	87 25 29.448	786.2	64 56 07.4	244 54 56.2	Manuel	4153.1	3.618376
			103 31 54.5	283 31 07.2	Suarez	2566.1	3.409279
			159 19 27.5	339 19 05.1	Chagrin	3336.8	3.523336
Fell (Ala.) 1890	30 24 00.169	5.2	263 59 23.3	84 00 03.1	Cummings	2109.2	3.324125
	87 26 52.886	1411.7	299 06 19.7	119 06 54.8	Nix	2117.8	3.325895
			349 20 19.1	169 20 32.8	Dupont	3881.0	3.588946
			7 30 55.6	187 30 50.5	Suarez	2051.0	3.311974
May (Ala.) 1890	30 25 04.553	140.2	284 17 08.4	104 18 02.9	Double	2964.9	3.472009
	87 25 17.104	456.5	14 36 18.6	194 36 09.9	Cummings	1820.8	3.260256
			45 16 40.0	225 16 11.4	Chagrin	2123.4	3.327035
Cove <sup>1</sup> 1890	30 23 53.43	1645.3	191 24 08	11 24 18	Grassy	2818.5	3.45002
	87 24 19.36	516.8	222 24 38	42 25 03	Double	1975.1	3.29559
Fish house southeast gable (Ala.) 1890	30 24 59.65	1836.7	278 45 00	98 46 11	Double	3815.3	3.58153
	87 25 50.74	1354.2	344 46 05	164 46 13	Cummings	1669.6	3.22262
Powell 1890	30 24 59.975	1846.7	77 57 17.3	257 56 24.8	Double	2830.4	3.451853
	87 21 45.746	1221.0	101 23 56.4	281 22 49.2	Grassy	3613.8	3.557960
			143 07 28.6	323 06 41.7	River West	4133.1	3.616276
			154 54 06.0	334 53 29.5	River East	4540.9	3.657143
Head 1890	30 26 51.322	1580.4	14 27 12.8	194 26 56.0	Powell	3540.8	3.549096
	87 21 12.634	337.1	42 15 33.9	222 14 24.6	Double	5430.5	3.734837
			58 28 58.7	238 27 34.7	Grassy	5192.1	3.715343
			87 55 06.9	267 54 03.2	River West	3365.9	3.527099
			103 40 32.2	283 39 38.8	River East	2891.5	3.461127
Hester 1890	30 24 52.170	1606.5	80 03 24.5	260 02 46.6	Double	2029.7	3.307439
	87 22 14.553	388.4	108 59 13.2	288 58 20.6	Grassy	2933.3	3.467356
			154 14 14.0	334 13 41.7	River West	3937.9	3.595262
			252 38 15.4	72 38 30.0	Powell	805.5	2.906085
Marcus 1890	30 26 10.618	327.0	40 15 32.9	220 14 57.9	Powell	2850.4	3.454899
	87 20 36.730	980.2	59 02 35.8	239 01 08.2	Double	5376.0	3.730462
			74 49 30.7	254 47 48.4	Grassy	5578.9	3.746550
			104 40 17.8	284 38 55.8	River West	4467.3	3.650046
Millview Seminole Mill smokestack 1890	30 25 12.469	384.0	73 50 41.9	253 49 38.0	Double	3505.0	3.544685
	87 21 23.325	622.4	94 33 09.3	274 31 50.7	Grassy	4154.0	3.618463
			133 30 12.9	313 29 14.6	River West	4244.2	3.627791
			185 21 12.4	5 21 17.8	Head	3057.3	3.485344
Millview schoolhouse flag- staff 1890	30 25 23.327	718.3	121 58 14.5	301 56 55.8	River West	4887.1	3.689051
	87 20 43.320	1156.1	133 22 30.0	313 21 21.8	River East	4941.2	3.693833
			163 53 56.9	343 53 42.0	Head	2820.3	3.450291

<sup>1</sup> No check on this position.







STANDARD TRIANGULATION STATION MARKS.



## DESCRIPTIONS OF STATIONS.

This list may be conveniently consulted by reference to the illustrations at the end of this publication or to the index. All azimuths given in these descriptions are reckoned continuously from true south around by west to  $360^{\circ}$ , south being  $0^{\circ}$ , west  $90^{\circ}$ , north  $180^{\circ}$ , and east  $270^{\circ}$ . Where magnetic azimuths are given they are indicated as such.

In general the surface and underground marks are not in contact, so that a disturbance of the surface mark will not necessarily affect the underground mark. The underground mark should be resorted to only in cases where there is evidence that the surface mark has been disturbed.

The dates and initials given in each description immediately after the county refer to the date of establishment of the station, the man by whom it was established, and the date when the station was last visited.

Any person who finds that one of the stations herein described has been disturbed, or that the description no longer fits the facts, is requested to send such information to the Superintendent, Coast and Geodetic Survey, Washington, D. C.

## MARKING OF STATIONS.

The standard triangulation disk station mark referred to in the following notes and descriptions consists of a disk and shank, as shown in illustration No. 1, made of brass and cast in one piece. The disk is 90 mm. in diameter, with a small hole at the center surrounded by a 20 mm. equilateral triangle, and has the following inscribed legend: "U. S. Coast and Geodetic Survey triangulation station. For information write to Superintendent, Washington, D. C. \$250 fine or imprisonment for disturbing this mark." The shank is 25 mm. in diameter and 80 mm. long, with a slit at the lower end into which a wedge is inserted so that when it is driven into a drill hole in the rock it will bulge at the bottom and hold the mark securely in place.

Another type of station mark shown in illustration No. 1 and referred to in the following notes and descriptions is made in the form of a cap to fit a 3-inch pipe instead of with the shank, but in other respects is exactly similar to the disk station mark described above.

## GENERAL NOTES IN REGARD TO STATION AND REFERENCE MARKS.

NOTE 1.—The station is marked by a copper nail in the squared top of a live oak stake or an auger hole in the top of a pine scantling stake. The underground mark is a copper tack or diagonal lines in the flat side of a brick 2 or 3 feet below the surface of the ground. Four posts with an iron nail in the top of each form a square about the station.

NOTE 2.—The station is marked by a copper nail in the top of a 4-inch or 6-inch tile which is filled and surrounded with concrete and projects a few inches above the ground. The underground mark is the center of the mouth of a small earthen jug which is filled with cement or is the center of the mouth of a bottle set in cement. Four reference posts with a copper nail in the top of each are each 4 feet from the station, north, east, south, and west, respectively.

NOTE 3.—The surface mark is a block of concrete with the upper part finished in the form of a truncated pyramid 8 or 10 inches square on top in which is set a standard disk station mark. The underground mark is a bottle set in concrete 3 feet below the surface.

NOTE 4.—The surface mark is a round concrete post in the top of which is set a standard disk station mark. The underground mark is a bottle set in concrete 3 feet below the surface.

NOTE 5.—The surface mark is a block of concrete finished at the upper end in the form of a truncated pyramid 6 or 8 inches square on top, marked with diagonal lines with a nail at the intersection or with a bottle embedded flush with the surface of the concrete. No underground mark was used. This type of marking was used chiefly as a reference mark.

NOTE 6.—The surface mark is a round concrete post with a bottle embedded in the center flush with the top. No underground mark was used. This type of marking was used chiefly as a reference mark.

NOTE 7.—The surface mark is a square concrete post with diagonal lines on top or with a bottle or a copper nail embedded in it flush with the surface. No underground mark was used. This type of marking was used chiefly as a reference mark.

NOTE 8.—The surface mark is a concrete post finished square above the surface of the ground with a standard disk station mark set in the top. The underground mark is a bottle set in concrete 3 feet below the ground.

NOTE 9.—The surface mark is a 4-inch tile filled with concrete with a spike in the center of the top, set flange down in a mass of concrete about 20 inches square (or 20 inches in diameter) and about 2 feet deep, with the top projecting a few inches above the surface. On the surface of the concrete is inscribed "C. & G. S.", with the year in which the mark was set. The underground mark is a concrete post 8 inches in diameter and  $2\frac{1}{2}$  feet long with a spike in the center of the top, set 2 or 3 feet below the surface of the ground.

NOTE 10.—This is the same as note 9, except that the underground mark is a 4-inch tile with flange down filled and surrounded with concrete with a spike in the center of the top.

NOTE 11.—The surface mark is a concrete post about 10 inches square (or 10 inches in diameter) and 24 inches long, with a spike in the center of the top which projects a little above the surface. No underground mark was used. This type of marking was used chiefly as a reference mark.

NOTE 12.—The surface mark is a standard disk station mark in the top of a 6-inch tile which is filled with concrete and set about level with the surface of the ground. The underground mark is an iron nail, a copper bolt, or a bottle embedded in a block of concrete 12 inches square and 6 inches thick about 30 inches below the surface of the ground.

NOTE 13.—The surface mark is a 3-inch galvanized-iron pipe 4 feet long projecting 12 to 16 inches above the ground with a standard cap station mark screwed to the top. No underground mark was used. This type of marking was used chiefly as a reference mark and should not be confused with the station mark.

#### CAPE SABLE TO SAN CARLOS BAY.

##### PRINCIPAL POINTS.

*Cape Sable west base* (Monroe County, A. D. B., 1855; 1909).—About 40 meters from the shore line at the end of the vista cut through the woods along the base line. The station is marked by a broken screw pile with a pile of stones placed over it. Four smaller screw piles, each surrounded by a bed of shells and marked with a cross and a copper bolt in the top, are at the following distances from the station: South, 15.21 meters; east, 15.15 meters; north, 15.24 meters; and west, 15.24 meters.

*Cape Sable latitude station* (Monroe County, J. H., 1886; 1909).—In a large grove of coconut trees about 70 meters from the sand beach. The concrete tombstone of Guy M. Bradley is 300 meters east and 80 meters south of the station and a coconut tree marked with a triangular blaze is 41 meters from the station. The north gable of the nearest of several deserted houses is 38 meters south  $71^\circ$  east from the station and an old deep ditch is about 6 meters distant. The station is marked by a brick pier 18 by 24 inches in cross section, which was found leaning to the north in 1909.

*Palm Point* (Monroe County, J. H., 1886).—On Palm Point, known also as Middle Cape in a grove of coconut trees 50 meters from high water. The station is marked by a cross in the top of a marble post. A tile used as a reference mark is 7.1 meters to the northward of the station in line with a large palmetto tree and another tile is 6.8 meters distant in azimuth  $310^\circ 40'$ . Four clumps of buttonwood are toward the shore at the following distances from the station: 25 meters, 9 meters, 9 meters, and 12 meters.

*Northwest Cape* (Monroe County, J. H., 1887).—On open ground on Northwest Cape, 10 meters from the beach line and about 300 meters south of the point where the woods extend to the shore. The station is marked by a cross in the top of a granite post projecting 6 inches above the ground.



*Shark* (Monroe County, J. H., 1887).—On a sharp sand spit, the only one in the vicinity, on a point about 3 miles north of Northwest Cape and about 5 miles south of the mouth of the Shark River. High-water mark is about 3 meters distant on the north, west, and south sides of the station. The station is marked by a cross in the top of a granite post 4 inches square and 3 feet long.

*Rodgers* (Monroe County, J. H., 1887).—On the western extremity of Shark Point, about 3 miles northwest of the mouth of Shark River and about 200 meters south of the mouth of a small creek that winds back of the station. There are several dead trees and fallen trunks along the shore and a large number of trees were cut around the station. The station is marked by a cross in the top of a granite post 4 inches square. Two red mangrove trees and a mangrove stump, each marked with a triangular blaze, are at the following distances, respectively, from the station: 21.0 meters, N.  $38^{\circ}$  E., 13.3 meters N.  $80^{\circ}$  E., and 1.2 meters N.  $15^{\circ}$  E.

*Fig* (Monroe County, J. H., 1887).—On a sand ridge about 5 feet high, on Highland Point on the western shore of Lostmans Key, about 2 miles south of the mouth of Lostmans River and about 100 meters north of the mouth of a small creek. The station is marked by a cross in the top of a stone post 4 inches square and 3 feet long. Two fig trees, each marked with a triangular blaze, are, respectively, 11.1 meters S.  $34^{\circ}$  E. and 10.4 meters S.  $65^{\circ}$  E. from the station.

*Seminole* (Monroe County, J. H., 1887).—On a sand ridge at the edge of the timber on Seminole Point, which is the southwestern end of a small key. A coral reef covered with grass, mangroves, and dead trees extends around the extremity of the point. The station is marked by a cross in the top of a granite post which projects 4 inches above the surface. A red mangrove and two black mangroves, each marked with a triangular blaze and a nail, are at the following distances from the station: 11.9 meters north, 15.2 meters west-northwest, and 19.2 meters east by north.

*Reef* (Monroe County, S. F., 1887).—On the southeastern part of a small coral island about 2 miles east of Pavilion Key, about 10 meters from the shore line and just southeast of a small pond. There are a few old mangroves on the northern part of the island. The station is marked by a cross in the top of a granite post 4 inches square and  $2\frac{1}{2}$  feet long which projects 4 inches above the ground.

*Pavilion Key* (Monroe County, S. F., 1887).—On the most western part of Pavilion Key, 6 meters inside of high-water line. The station is marked by a cross in the top of a marble post. A blazed buttonwood is 7.05 meters northeast, another 4.79 meters northwest, and a blazed mangrove 7.92 meters west from the station.

*Freeland* (Monroe County, S. F., 1887).—On a high rocky key, the most westerly one in the vicinity, about 4 miles northwest of Pavilion Key. There is a conspicuous white sand beach at low water on the key just to the eastward of this key. The station is marked by a cross in the top of a marble post.

*Coral* (Lee County, J. H., 1887).—On the southern extremity of Indian Key, 10 meters back from the rocky bluff that forms the end of the point. The station is marked by a marble post.

*Fire* (Lee County, J. H., 1887).—On the southwestern extremity of Round Key, about 6 meters back of the high bluff bank and about 200 meters from the point of the coral reef which extends around the end of the key. The station is marked by a tile. Three palmetto trees, each marked with a blaze and a nail, are at the following distances, respectively, from the station: 6.2 meters northeast, 4.3 meters northwest, and 5.8 meters west.

*Horse Key* (Lee County, J. H., 1887).—On the southwest end of the first key northwest of Panther Key, 10 meters north of the edge of the bluff, below which are many dead trees. The station is marked by a cross on the top of a marble post.

*Coon Key* (Lee County, J. H., 1887).—On a small hill on the key just north of Coon Key, 200 meters across the east channel into Goodland Point from the west end of Coon Key. The station is marked by a small hole in the top of a marble post. A nail in a gumbo limbo tree is 4.5 meters west, and a nail in a buttonwood tree is 4.9 meters northwest from the station.



*Cape Romano* (Lee County, J. H., 1885; 1887).—On Cape Romano 6 meters back of high-water line and 315 meters north of the most southern point of the cape. The station is marked by a hole in the top of a marble post. A tile is buried 16.04 meters due north of the station and another 15.50 meters east by north. A large buttonwood tree marked with a blazed cross is at the edge of the woods about 125 meters north-northeast from the station and a large red mangrove tree similarly marked is at the edge of the woods about 160 meters east by north.

*Johnson* (Lee County, J. H., 1887; 1889).—On Caximbas hill, just north of the house belonging to Charles Johnson. The station is marked by a cross in the top of a marble post. A galvanized tack in the northeast corner of the house is 5.60 meters from the station, and a similar mark in the northwest corner of the house is 3.82 meters distant.

*Caximbas* (Lee County, J. H., 1885; 1890).—Lost.

*Big Marco* (Lee County, J. H., 1885; 1890).—Lost.

*Little Marco* (Lee County, J. H., 1885).—On the west side of the point just south of the entrance to Little Marco Pass. The station is marked by a copper tack in the top of a cedar stub surrounded by three bottles each buried 5 feet from the station, north-northeast, southeast, and west, respectively. There is a pond and a sand ridge west of the station.

*Johns Pass* (Lee County, J. H., 1885).—A little east and north of the extremity of the point, on the north side of the entrance to Johns Pass. The station is marked with a copper nail in the top of a cedar stub.

*Gordons Pass* (Lee County, J. H., 1885).—At the edge of the grass about 270 meters south of the entrance to Gordons Pass. The station is marked by a copper tack in the top of a cedar stub, surrounded by three bottles, each buried 5 feet from the station, north, east-southeast, and west-southwest, respectively. Two palmettos, each marked with a triangular blaze, are, respectively, 16.1 meters north and about 20 meters east from the station.

*Doctors Pass* (Lee County, J. H., 1885).—On the shore on the north side of the entrance to Doctors Pass, 34 meters nearly due west of two prominent palm trees growing very close together. The station is marked by an iron nail in the top of a yellow pine stub.

*Wiggins Pass* (Lee County, J. H., 1884).—On the shore just north of Wiggins Pass, 18 meters back from the edge of the grass. The station is marked by a cross in the top of a granite post, projecting 6 inches above the surface, and inscribed "U. S. B. M. 1880." Two bottles, each buried 6 inches below the surface, are, respectively, 3.71 meters east and 4.36 meters south from the station.

*Big Hickory* (Lee County, J. H., 1884).—On the sandy point at the north end of Little Hickory Island just south of Big Hickory Pass, at the northern edge of the woods 8 meters from a creek to the east and about 25 meters from the Gulf shore to the west. The station is marked by a copper tack in the top of a cedar stub and underground by an inverted bottle 5 feet below the surface. A triangular blaze on the middle one of three mangroves near the Gulf shore is 17 meters N. 84° W. from the station and a copper nail in the top of a pine stake is in the woods 12.2 meters S. 30° E.

*Big Carlos* (Lee County, J. H., 1884).—On Estero Island, on the point just north of the entrance to Big Carlos Pass, 6 meters from the edge of the grass and 18 meters from high-water mark. The station is marked by a cross in the top of an iron screw pile projecting 6 inches above the surface. Two stakes with a copper tack in the top of each are, respectively, 9.1 meters, east-northeast and 8.9 meters due north from the station.

*Little Carlos* (Lee County, J. H., 1884).—On the key just north of Little Carlos Pass, 27 meters from high water to the south. The station is marked by a copper tack in the top of a cedar post.

*Oyster Key* (Lee County, J. H., 1884).—On a mangrove point on the eastern side of Estero Bay. An oyster bank bare at low water surrounds the point. The station is marked by a copper tack in the top of a cedar stub. Three trees, each marked with a triangular blaze, with a nail at the center of the blaze, are at the following distances from the station: 5.8 meters N. 40° W., 8.3 meters N. 80° E., and 7.7 meters S. 16° W.



*Bowditch Point 2* (Lee County, J. H., 1883; 1888).—On the south side of Bowditch Point, at the western end of Estero Island, 41 meters back from the edge of the grass 65 meters from high-water mark to the west and 140 meters from low-water mark in the same direction. The station is marked by a cross in the top of a marble monument.

*Mound Key* (Lee County, J. H., 1884).—On the highest mound on Mound Key in Estero Bay. The mound is about 60 feet high and  $2\frac{1}{2}$  miles from the mainland shore of the bay. The station is marked by a copper tack in the top of a cedar post, projecting 8 inches above the surface, and underground by a small hole in the top of a granite block 18 inches below the surface.

*Point Ybel 2* (Lee County, J. H., 1883; 1909).—East of Sanibel Island lighthouse on the eastern extremity of Sanibel Island, at the edge of the bushes 18 meters from ordinary high-water mark. The station is marked by a cross in the top of a marble post embedded in a mass of concrete which projects 5 inches above the ground and is inscribed "C. & G. S., 1888." The underground mark is 4-inch tile 3 feet below the surface.

*Summerlin* (Lee County, J. H., 1884).—On the eastern shore of San Carlos Bay on a tower adjoining the house of Mr. Summerlin, and formerly used by the Signal Service as an observatory. The station is marked by a copper tack driven flush with the roof. A copper tack in the northeast corner of the roof is 2.65 meters distant, one in the northwest corner 1.94 meters, and one in the southwest corner 3.37 meters.

#### CALOOSAHATCHEE RIVER TO CHARLOTTE HARBOR.

##### PRINCIPAL POINTS.

*Middle Point* (Lee County, I. C. C., 1858; 1908).—Lost.

*Sword Point* (Lee County, W. R. T., 1860; 1892).—On Sword Point on the east side of the southern end of Matlacha Pass, 11 meters from high-water mark to the south. The station is marked by a cross in the top of a granite monument 5 inches square and  $2\frac{1}{2}$  feet long, surrounded by four stakes, each 2 feet distant, north, east, south, and west, respectively.

*Punta Rasa* (Lee County, I. C. C., 1859).—Near the south side of Punta Rasa about 100 paces south of the Government storehouse and 18 paces from high-water mark. The station is marked by a cross in the top of a granite monument 5 inches square and  $2\frac{1}{2}$  feet long surrounded by four stakes each 2 feet distant, north, east, south, and west, respectively.

*South End* (Lee County, J. H., 1884; 1909).—On a point covered with a heavy growth of buttonwood and mangroves at the southeastern extremity of Pine Island, near the location of an old fish camp, 11 meters from the shore. The station is marked by a 1-inch iron bolt 12 inches long set in a mass of concrete which projects 8 inches above the ground and is inscribed "C. & G. S., 1909." Four large trees each marked with a triangular blaze, with a spike at the center of the blaze, are at the following distances and azimuths from the station: 11.34 meters,  $61^{\circ} 52'$ ; 14.75 meters,  $92^{\circ} 48'$ ; 5.65 meters,  $134^{\circ} 58'$ ; and 8.91 meters,  $169^{\circ} 00'$ .

*Caloosa* (Lee County, W. R. T., 1860).—On a sand bar submerged at high tide about half way between two keys just off the southeastern extremity of Pine Island. The station is marked by a screw pile surrounded by four stakes, each 6 feet distant, north, east, south, and west, respectively.

*White* (Lee County, W. R. T., 1860).—On a small shell heap between the shore and the edge of the black mangroves at the northeastern extremity of a prominent point on the west side of the southern end of Matlacha Pass. The station is marked by a granite post set in concrete surrounded by four stakes each 6 feet distant, north, east, south, and west, respectively.

*Sanibel east base* (Lee County, I. C. C., 1858; 1866).—On the south or Gulf shore of Sanibel Island, about half a mile from the southeastern extremity of the island, just back of high-water line. The station is marked by a cross on a plug in the top of an iron screw pile 5 feet long, projecting 10 inches above the surface. It was searched for without success in 1866.

*Sanibel west base* (Lee County, I. C. C., 1858; 1866).—On the Gulf shore of Sanibel Island, about 3 miles from the southeastern extremity of the island. The station is marked by a



nail in the center of a wooden plug in the top of a screw pile, projecting 6 inches above the surface of the ground. It was searched for without success in 1866.

*Sanibel* (Lee County, I. C. C., 1858).—On the Gulf shore of Sanibel Island, about 7 miles from the southeastern extremity of the island, and 25 meters from high-water line. The station is marked by a cross in the top of a granite monument 5 inches square and 2 feet long, projecting 2 inches above the surface of the ground. Four stakes, with a copper tack in the top of each, are each 4 feet from the station north, east, south, and west, respectively.

*Havelock* (Lee County, I. C. C., 1858).—Near the center of a small circular key about 30 meters in diameter, in the eastern part of the southern end of Pine Island Sound, about 1 mile east of Chino Island. The station is marked by a cross in the top of a granite monument 5 inches square and 2 feet long, surrounded by four stakes each 4 feet distant north, east, south, and west, respectively.

*Blind Pass* (Lee County, I. C. C., 1858).—Near the southern end of Captiva Island, on the west side of Blind Pass, 65 meters from high-water mark of the Pass and 100 meters from the shore line of the Gulf. The station is marked by a cross in the top of a granite monument 5 inches square and 2 feet long, surrounded by four stakes each 4 feet distant north, east, south, and west, respectively. A new channel has been formed through the island in this vicinity and the station is probably lost.

*Captiva* (Lee County, I. C. C., 1858).—On the narrow part of Captiva Island, about midway between Captiva Pass and Blind Pass, 31 paces from high-water mark of the Gulf shore and 79 paces from high-water mark of the Sound shore. The station is marked by a cross in the top of a granite monument 5 inches square and 2 feet long, projecting 3 inches above the surface and surrounded by four stakes each 4 feet distant north, east, south, and west, respectively.

*Lucknow* (Lee County, I. C. C., 1858; 1909).—This station has been destroyed.

*Boca Captiva* (Lee County, W. R. T., 1859; 1895).—On the southern end of Lacosta Island. The station is marked by a diagonal cross in the top of a granite monument, surrounded by four stakes each 2 feet distant north, east, south, and west, respectively. The station was searched for without success in 1895.

*Bocillas* (Lee County, W. R. T., 1859).—On one of the small keys just north of the north end of Pine Island. The station is marked by a cross in the top of a granite post, which is surrounded by four stakes, each 2 feet distant north, east, south, and west, respectively.

*Boca Grande* (Lee County, W. R. T., 1859; 1895).—Lost.

*Oso* (De Soto County, W. R. T., 1858; 1895).—Lost.

*El Gabo* (De Soto County, W. R. T., 1859).—On a very small key just off Cape Haze, in the northern part of Charlotte Harbor. There are a few mangrove bushes to the south of the station and a sand bar projects to the north from the north side of the island. The station is marked by a granite monument surrounded by four stakes each 4 feet distant north, east, south, and west, respectively.

*Mound* (De Soto County, W. R. T., 1860).—On a very peculiar and well-known mound about 25 feet above high water, on a small point of land near the center of Shoalwater Bay, an arm of Charlotte Harbor. The station is marked by a granite post surrounded by four stakes each 6 feet distant north, east, south, and west, respectively.

*Torrey* (De Soto County, W. R. T., 1859; 1909).—Lost.

*Punta Gorda* (De Soto County, W. R. T., 1859).—On the extremity of Punta Gorda, on the east side of Charlotte Harbor, about 6 paces from high-water mark. The station is marked by a granite post, surrounded by four stakes, each 4 feet distant north, east, south, and west, respectively.

*Pelican* (De Soto County, W. R. T., 1859).—On the western part of the most western one of a group of small mangrove keys, in the eastern part of Charlotte Harbor. The station is marked by a granite post surrounded by four stakes each 4 feet distant north, east, south, and west, respectively.

*Dana* (De Soto County, W. R. T., 1859).—On the western shore of the northern end of Charlotte Harbor, on a small mangrove point about 5 miles north of Cape Haze. The station



is marked by a granite post surrounded by four cedar stakes each 4 feet distant north, east, south, and west, respectively.

*Locust Point* (De Soto County, W. R. T., 1860).—On Locust Point, at the eastern extremity of the island east of the mouth of the Miakka River. The station is probably marked by a granite post. Two mangrove trees, each marked with a triangular blaze, are, respectively, 7.9 meters southwest and 6.9 meters east by north.

*Shoal Point* (De Soto County, W. R. T., 1860).—On the southwestern extremity of Shoal Point, on the south side of the island, just east of the mouth of the Miakka River. The station is 5 meters from high-water mark and is probably marked by a granite post.

*Bruce* (De Soto County, W. R. T., 1860).—On a small sand flat, submerged at high water, at the northern end of Charlotte Harbor, on the west side of the entrance to the Miakka River. The station is marked by a granite post, surrounded by four stakes each 6 feet distant north, east, south, and west, respectively.

*Palmetto* (De Soto County, W. R. T., 1860).—On a sand ridge just above high water on a point on the west side of a large island in the northern part of Charlotte Harbor just east of the mouth of the Miakka River. To the east of the station is a large open space covered with dead mangroves, and to the north are palmetto trees and bushes covering the northern end of the island. The station is marked by a granite post surrounded by four stakes, which are north, east, south, and west, respectively.

*Miakka* (De Soto County, W. R. T., 1860).—On the first prominent point north of the entrance on the west side of the Miakka River. The station is marked by a granite post surrounded by four stakes, north, east, south, and west, respectively.

*Eureka* (De Soto County, W. R. T., 1860).—On the east side of the northern end of Charlotte Harbor, about 3 miles southwest of the town of Punta Gorda, on a small oyster-shell bank. The station is marked by a screw pile, surrounded by four stakes, which are north, east, south, and west, respectively.

*Grassy Point* (De Soto County, W. R. T., 1860).—In about 8 inches of water at the edge of the mangrove bushes at the southern extremity of Grassy Point on the north side of the mouth of the Peace River. The station is marked by a granite post surrounded by four stakes, which are north, east, south, and west, respectively.

*Cooper* (De Soto County, W. R. T., 1860).—On the south side of the mouth of the Peace River on the first point about 2 miles west of the town of Punta Gorda. The station is marked by a granite post surrounded by four stakes, which are north, east, south, and west, respectively.

*Live Oak Point* (De Soto County, W. R. T., 1860).—On Live Oak Point, a prominent point on the north side of the Peace River opposite the town of Punta Gorda. The station is marked by a granite post surrounded by four stakes, which are north, east, south, and west, respectively.

*Willow Point* (De Soto County, W. R. T., 1860).—On a point on the south side of the Peace River in the town of Punta Gorda. The station is marked by a granite post surrounded by four stakes, which are north, east, south, and west, respectively.

*Piney Point* (De Soto County, W. R. T., 1860).—On Piney Point, a prominent point on the north side of the Peace River northeast of the town of Punta Gorda. The station is marked by a granite post surrounded by four stakes, which are north, east, south, and west, respectively. Two dwarfed pines, each marked with two blazes, are about 50 meters from the station.

*New Point* (De Soto County, W. R. T., 1860).—On New Point, on the south side of the Peace River, a short distance northeast of the town of Punta Gorda. The station is marked by a granite post, surrounded by four stakes, which are north, south, east, and west, respectively.

*Middle* (De Soto County, W. R. T., 1860).—At the western extremity of a small key, near the south shore of the Peace River, about 2 miles above the town of Punta Gorda. The station is marked by a granite post surrounded by four stakes, which are north, east, south, and west, respectively.



*Trout* (De Soto County, W. R. T., 1860; 1909).—At the edge of the mangroves on a point overflowed at high tide on the south shore of Peace River, about 2 miles northeast of the town of Punta Gorda and one-half mile northeast of a long wharf. There is a small creek about 300 meters southwest of the station and another about 15 meters northeast. The station is marked by a cross in the top of a granite post embedded in a mass of concrete projecting 4 inches above the ground and inscribed "C. & G. S. 1909." A reference mark, a 4-inch tile embedded in a mass of concrete inscribed "R. M. 1909," is on a ridge between the creek and the marsh 8.36 meters from the station in azimuth  $6^{\circ} 48'$ . Two trees marked with triangular blazes are at the following distances from the station: Mangrove, 21.16 meters S.  $54^{\circ}$  E.; palmetto, 15.20 meters S.  $33^{\circ}$  E.

*Peace Creek* (De Soto County, W. R. T., 1860; 1909).—About 3 miles east of the town of Punta Gorda, on the north bank of Peace Creek, at the edge of high marsh grass, not more than 7 meters from deep water and about 25 meters north of a small creek. About 300 meters south of the station is another small, deep creek, near the mouth of which are some bushes and a few palmettos. The station is marked by a cross in the top of a granite post embedded in a mass of concrete, which projects 8 inches above the ground and is inscribed "C. & G. S. 1909." A reference mark, a spike in the top of a concrete post 15 inches square inscribed "R. M. 1909," is 14.73 meters from the station in azimuth  $151^{\circ} 31'$ .

*Darling* (Lee County, W. R. T., 1859).—On the point of a mangrove key on the eastern side of Pine Island, and near the northern end of Matlacha Pass. The station is marked only by the signal.

*Belinda* (Lee County, W. R. T., 1859).—On the eastern shore of Charlotte Harbor, directly east of the northern end of Pine Island. The station is marked by a granite post surrounded by four stakes, each 6 feet distant, north, east, south, and west, respectively.

*Dorr* (Lee County, W. R. T., 1861).—On a sand spit about 3 feet high on the west side of a small key in the eastern part of the northern end of Matlacha Pass. There are numerous other small keys between this key and the mainland. The station is marked by a granite post set in concrete and surrounded by four stakes, each 6 feet distant, north, east, south, and west, respectively.

*Matlacha* (Lee County, W. R. T., 1861).—Near the eastern side of a small key just east of Pine Island, in the western part of Matlacha Pass, opposite several well-known oyster bars. The station is on the highest part near the northern end of a mound, the only high ground in this region. It is marked by a granite post set in concrete surrounded by four stakes, each 6 feet distant, north, east, south, and west, respectively.

*Rubber* (Lee County, W. R. T., 1861).—On the southeastern part of a small key in the western part of Matlacha Pass. The key is overflowed occasionally during storms, but has a growth of grass on it. The station is marked by a granite post set in cement, surrounded by four stakes, each 6 feet distant, north, east, south, and west, respectively.

*Gull* (Lee County, W. R. T., 1861).—On a sand ridge thrown up by the water on the west side of a key in the eastern part of Matlacha Pass. There is a low place back of the station on which there are some black mangroves and small ponds of salt water. The station is marked by a granite post surrounded by four stakes, each 6 feet distant, north, east, south, and west, respectively.

*Owl* (Lee County, W. R. T., 1861).—Near the east side of Pine Island, about one-half mile from the shore and about one-fourth mile north of a prominent point of pines. The station is in the long grass near the edge of the palmettos, the nearest of which is about 60 meters distant. It is marked by a granite post set in concrete, with a stake to the east and another to the west.

*Meridian* (Lee County, W. R. T., 1860).—On a point of the mainland on the east side of Matlacha Pass. The station is marked by a granite post set in concrete, surrounded by four stakes, each 6 feet distant, north, east, south, and west, respectively.

*Lumber* (Lee County, W. R. T., 1860).—On the southern extremity of a long, narrow key on the west side of Matlacha Pass. The station is marked by a granite post set in concrete surrounded by four stakes, each 6 feet distant, north, east, south, and west, respectively.



*Deer* (Lee County, W. R. T., 1860).—On the east side of Matlacha Pass, on the flat back of a long narrow key which is covered with a thick growth of mangroves. The station is marked by a granite post set in concrete, surrounded by four stakes, each 6 feet distant.

*Narrows* (Lee County, W. R. T., 1860).—On the west side of Matlacha Pass, on a prominent point covered with a thick growth of red mangroves. The station is 1½ feet above high-water mark, and is marked by a granite post set in concrete, surrounded by four stakes, each 4 feet distant, north, east, south, and west, respectively.

*Grape* (Lee County, W. R. T., 1860).—On the western extremity of a prominent point on the east side of Matlacha Pass. The station is marked by a granite post set in concrete and surrounded by four stakes, each 4 feet distant, north, east, south, and west, respectively.

*Bailey* (Lee County, W. R. T., 1860).—On a shell heap 3 feet high on a point on the east side of Pine Island. The station is marked by a cross in the top of a granite monument set in concrete and surrounded by four stakes, each 6 feet distant, north, east, south, and west, respectively.

*Buttonwood* (Lee County, W. R. T., 1860).—On the western extremity of a prominent point, on which there is a large number of buttonwood trees, on the east side of Matlacha Pass. The station is marked by a granite post set in concrete, surrounded by four stakes, each 4 feet distant.

*Brown* (Lee County, W. R. T., 1860; 1909).—At the center of a thicket of large cacti on the highest part of the large shell mound about 35 feet high, known as Brown's mound, in the yard of Mr. Stafford, in the town of Pineland. The station is marked by a cross in the top of a granite post embedded in a mass of concrete which projects 4 inches above the ground and is inscribed "C. & G. S. 1909."

*Las* (Lee County, W. R. T., 1859).—On the northwest side of one of the Las Bocillas Keys, just west of the northern end of Pine Island. The station is marked by a cedar stake at the center of an iron cone which is 1 foot below the surface. Four cedar stakes are each 6 feet from the station, north, east, south, and west, respectively.

*Oyster* (Lee County, J. H., 1892; 1909).—On a long oyster reef, submerged at high tide, on the northwest side of the main channel into the Caloosahatchee River and directly opposite the Punta Rasa Hotel. The station is marked by a spike in the top of a concrete post which projects 3 inches above the shells.

*Bird Island* (Lee County, J. H., 1892).—About 2 miles northwest of Punta Rasa, on an oyster reef covered at high tide, 12 meters northeast of the northeast corner of Bird Island. The station is marked by a nail in the top of a yellow-pine stub.

*Pine* (Lee County, J. H., 1892).—A pole and flag in the top of a high pine tree situated on the first pine hummock from the entrance on the south side of the Caloosahatchee River. Between the pines and the shore is low ground covered with mangroves and grass. The tree is cleated up from the ground, the cleats nailed on blazed surfaces.

*A* (Lee County, J. H., 1892).—On a prominent point, covered with a dense growth of mangroves, near the mouth on the north shore of the Caloosahatchee River. The station is on the beach and covered at high tide and is marked by a nail and a triangle in the top of a concrete post. A mangrove tree and a grape bush, each marked with a triangular blaze and a nail, are, respectively, 4.4 meters north and 5.5 meters northwest from the station.

*B* (Lee County, J. H., 1892).—On a point on the south side of the Caloosahatchee River, almost due south of Red Fish Point. The land around the station is covered with buttonwood and mangrove trees. The station is marked by a nail in the center of a triangle in the top of a concrete post. A brass tack in a triangular blaze on an old buttonwood stump is 1.82 meters north-northwest, and a similar mark on a mangrove tree is 5.58 meters south-southwest from the station.

*Red Fish Point* (Lee County, J. H., 1892).—On the north side of the Caloosahatchee River, on Red Fish Point, 10 meters from high-water mark, and 21 meters from a single palmetto that stands at the edge of the woods to the north of the station. The station is marked by a nail surrounded by a triangle in the top of a concrete post, and underground by a bottle.



*Palmetto Point* (Lee County, J. H., 1892).—On Palmetto Point, on the south side of the Caloosahatchee River, 3 meters from high-water mark. The station is marked by a nail and a triangle in the top of a concrete post. Two palm stumps, each marked with a nail, and a palm tree, marked with a triangular blaze and a nail, are at the following distances, respectively, from the station: 0.51 meters north, 2.79 meters east, and 6.19 meters south.

*Harney Point* (Lee County, J. H., 1892).—At the extremity of Harney Point, on the north side of the Caloosahatchee River, 3 meters from high-water mark. The station is marked by a triangle and nail in the top of a concrete post. Two palm trees, each marked with a triangular blaze and a nail, are, respectively, 4.84 meters northeast and 11.60 meters north-northwest from the station.

*Harris* (Lee County, J. H., 1892).—On the east end of Dr. Harris's place, about 40 meters east of the end of the cultivated field east of the house, 45 meters from high-water mark, and 50 meters from the line fence running to Nigger Head Point. The station is marked by a triangle and a nail in the top of a concrete block, and underground by a bottle. Two pine stumps, each marked with a nail in the center of a triangular blaze, are, respectively, 5.95 meters south and 10.99 meters northeast from the station.

*C* (Lee County, J. H., 1892).—In the water at the end of a mangrove point on the northwest side of the Caloosahatchee River, about a mile northeast of Harney Point and about 7 meters outside the mangrove trees. The station is in 6 inches of water at low tide and is marked only by the signal which was left standing. Two old mangrove stumps, each marked with a triangular blaze and a nail, are, respectively, 11.37 meters north-northeast and 9.57 meters west from the station.

*Travers* (Lee County, J. H., 1892).—On the Travers place, on the southeast side of the Caloosahatchee River, on the bank in front of the house, 1 meter outside of the front fence, 10 meters east of the inner end of the wharf, and 3 meters from high-water mark. The station is marked by a nail and a triangle in the top of a concrete post. Two bottles are buried, one 1.05 meters east and the other 0.72 meter south from the station.

*Four Mile Point* (Lee County, J. H., 1892).—On the southeastern extremity of Four Mile Island, a prominent mangrove point on the northwest side of the Caloosahatchee River 4 miles below Fort Myers. The station is marked by a nail in the top of a mangrove stump 4 feet high. The signal pole was left standing on the stump.

*No Name* (Lee County, J. H., 1892).—On the southeast side of the Caloosahatchee River, on the first prominent point, about  $1\frac{1}{2}$  miles southwest of Rylander's house. The point is dry and sandy and is covered with palm trees. The station is 3 meters from high-water mark and is marked by a nail at the center of an inscribed triangle in the top of a concrete post, and underground by a bottle. Three palm trees, each marked by a nail at the center of a triangular blaze, are, respectively, 3.58 meters east, 3.27 meters north, and 3.96 meters west from the station.

*Edison* (Lee County, J. H., 1892).—Near the end of the pier in front of Mr. Edison's house, on the southeast side of the Caloosahatchee River. The station is 8.31 meters from the northwest corner of the pier, 7.04 meters from the northeast corner, and is marked by a galvanized tack at the center of a small inscribed triangle. Two marks similar to the station mark are at the north and south edge of the pier, 2.55 meters north-northeast and 2.84 meters south-southeast from the station, respectively. The east end of a galvanized cleat on the north edge of the pier is 2.48 meters northwest of the station.

*Hancock* (Lee County, J. H., 1892).—On a point on the northwest side of the Caloosahatchee River, opposite Mr. Edison's house and just southwest of the mouth of Hancock Creek. The station is on a sand ridge 5 meters from high-water mark and is marked by a nail at the center of an inscribed triangle in the top of a concrete block, and underground by a bottle.

*Sawmill* (Lee County, J. H., 1892).—On a low point on the northwest side of the Caloosahatchee River, opposite Fort Myer, south of a sawmill on the point and 4 meters from high-water mark. There is a shed about midway between the station and the sawmill. The station is marked by a nail at the center of an inscribed triangle in the top of a concrete post and under-



ground by a bottle. Two palm trees, each marked with a triangular blaze, are in range with the station to the northwest and at distances of 19.98 meters and 76 meters, respectively.

*Experimental* (Lee County, J. H., 1892).—On the southwest side of the Caloosahatchee River, about 1 mile east of the experimental farm, on a sand bank outside of a mangrove point. The station is marked by a nail at the center of an inscribed triangle in the top of a cement post, and underground by a bottle. A nail in a triangular blaze on a mangrove tree is 8.57 meters southeast, and a similarly marked palm is 15.00 meters southwest from the station.

*Marsh Point* (Lee County, J. H., 1892).—On Marsh Point, on the northwest side of the Caloosahatchee River, on high sandy ground at the edge of the palmettos, just back of the marsh that forms the end of the point. The station is marked by a nail at the center of an inscribed triangle in the top of a concrete post which is very close to a palmetto stump. The underground mark is a nail in a root of the stump. Three palm trees, each marked with a nail, are, respectively, 0.10 meter south, 4.21 meters northeast, and 2.21 meters northwest from the station.

*Caloosa* (Lee County, J. H., 1892).—On Currys Point, a prominent, sandy, palmetto point on the north side of the Caloosahatchee River, north of the western extremity of Beautiful Island. The station is 8 meters back of high-water mark and is marked by a nail at the center of an inscribed triangle in the top of a cement post and underground by a bottle. Two palm trees, each marked with a nail at the center of a triangular blaze, are, respectively, 6.44 meters north-northeast and 6.16 meters north-northwest from the station.

*Useppa Inn* (Lee County, W. B. F., 1909).—The center of the square cupola on Useppa Inn, which is on Useppa Island at the northern end of Pine Island Sound. The island is owned by Mr. Roche of Chicago.

*Jug Point* (Lee County, W. B. F., 1909).—At the northern end of Pine Island, on Jug Point, the second sandy point about 400 meters north of the entrance to Jug Creek, and about  $\frac{1}{2}$  mile southwest of Martin's store and Bokeelia post office. The point is covered with a growth of grapes, mangroves and palmettos and the station is on hard ground just inside the wood line, about 12 meters from high-water mark. The station is marked according to note 9,<sup>1</sup> except that a 6-inch granite post takes the place of the tile. Three trees marked with triangular blazes, with a spike at the center of each blaze, are at the following distances and azimuths from the station: Mangrove, 31.68 meters,  $63^{\circ} 38'$ ; grape, 6.05 meters,  $288^{\circ} 17'$ ; and palmetto, 6.54 meters,  $27^{\circ} 52'$ .

*Cape Haze* (De Soto County, W. B. F., 1909).—On the highest part of the shell ridge which runs along the shore on the south side of Cape Haze on the northern shore of Charlotte Harbor. The ridge is about 15 feet high and is covered with a growth of large gumbo limbo, cacti and wild fig and just back of the ridge there is a dense growth of mangroves. The station is 25 meters from the shore line and is marked according to note 9,<sup>1</sup> except that there is no underground mark. Three trees, each marked with a triangular blaze, with a spike at the center of the blaze, are at the following distances and azimuths from the station: Gumbo limbo, 4.87 meters,  $38^{\circ} 13'$ ; wild fig, 11.66 meters,  $82^{\circ} 55'$ ; and gumbo limbo, 14.33 meters,  $277^{\circ} 22'$ .

*Torrey 1909* (De Soto County, W. B. F., 1909).—On the east shore of Charlotte Harbor, north of what is known as Burnt Shore Coast, on the south point of the second bayou about  $1\frac{1}{4}$  miles south of Key Point. The station is on a sand ridge about 10 meters from the shore line and is marked according to note 9,<sup>1</sup> except that there is no tile in the concrete of the surface mark. Three large black mangrove trees, each marked with a triangular blaze, with a spike at the center of the blaze, are at the following distances and azimuths from the station: 8.13 meters,  $126^{\circ} 34'$ ; 11.03 meters,  $257^{\circ} 47'$ ; and 14.79 meters,  $23^{\circ} 14'$ .

*Mellie* (Lee County, I. C. C., 1860, 1909).—On the east side of Captiva Island, on the eastern extremity of the first prominent point south of Captiva Pass. The point is low and covered with a dense growth of mangroves and is overflowed at high tide. The station is 12 meters back from the edge of the mangroves, and is marked by a cross in the top of a

<sup>1</sup> See pp. 61-62.

granite post embedded in a mass of concrete which projects 6 inches above the ground and is inscribed "C. & G. S. 1909." Four black mangrove trees, each marked with a triangular blaze, with a spike at the center of each blaze, are at the following distances and azimuths from the station: 10.48 meters,  $157^{\circ} 53'$ ; 8.28 meters,  $330^{\circ} 30'$ ; 11.41 meters,  $26^{\circ} 13'$ ; and 8.66 meters,  $94^{\circ} 08'$ .

*Demorest* (Lee County, W. B. F., 1909).—On the highest part of a high shell mound on Demorest Key, a well known key in the eastern part of Pine Island Sound. There are some lime trees and wild lemon trees on the mound. The station is marked according to note 9.<sup>1</sup> Three large trees, each marked with a triangular blaze, with a spike at the center of the blaze, are at the following distances from the station: Sappadillo, 5.73 meters, S.  $39^{\circ} W.$ ; tamarind, 13.48 meters, N.  $56^{\circ} W.$ ; and gumbo limbo, 8.86 meters, N.  $3^{\circ} E.$

*Captiva Pass* (Lee County, W. B. F., 1909).—On the north shore of Captiva Pass, at the south end of Lacosta Island, 30 meters south of the palmetto growth and 50 meters from high-water mark. The station is marked according to note 9.<sup>1</sup> Three palmetto trees, each marked with a triangular blaze, with a spike at the center of the blaze, are at the following distances from the station: 11.78 meters, N.  $68^{\circ} E.$ ; 31.39 meters, S.  $43^{\circ} W.$ ; and 12.08 meters, N.  $63^{\circ} W.$

*Punta Gorda Hotel cupola* (De Soto County, W. B. F., 1909).—The flagstaff on the cupola of the large hotel at Punta Gorda. The cupola is about 10 feet square with a dome-shaped roof and about 80 feet above the ground.

*Live Oak Point 1909* (De Soto County, W. B. F., 1909).—On Live Oak Point, on the north shore of Peace River, opposite the town of Punta Gorda, on a sand ridge at the edge of the marsh, about 80 meters from the extremity of the point. A long cattle dock extends from the point and the station is 16.65 meters west of the prolongation of this dock and 19.62 meters from the northeast corner of a cattle pen. The station is marked according to note 9.<sup>1</sup> The largest of three live oak trees in the cattle pen is marked with a triangular blaze with a spike at the center of the blaze and is 25.56 meters from the station in azimuth  $301^{\circ} 47'$ .

*Cooper 1909* (De Soto County, W. B. F., 1909).—On the south shore of Peace River, on a point about 2 miles west of the town of Punta Gorda, the last point to the westward from which the town is visible. The station is in the mangroves about 15 meters from ordinary high-water mark. It is marked according to note 9,<sup>1</sup> except that there is no underground mark. Three mangrove trees, marked with triangular blazes, with a spike at the center of each blaze, are at the following distances and azimuths from the station: 10.91 meters,  $124^{\circ} 52'$ ; 7.74 meters,  $235^{\circ} 56'$ ; and 9.93 meters,  $334^{\circ} 22'$ .

*Grassy Point 1909* (De Soto County, W. B. F., 1909).—On the north shore of Peace River, in the marsh just back of a sandy ridge on the first small point about 400 meters east of Grassy Point. The station is 25 meters from high water and is marked according to note 9,<sup>1</sup> except that there is no underground mark. Three palmetto trees, marked with triangular blazes, with a spike at the center of each blaze, are at the following distances and azimuths from the station: 13.99 meters,  $284^{\circ} 50'$ ; 10.61 meters,  $26^{\circ} 28'$ ; and 10.16 meters,  $38^{\circ} 54'$ .

*Locust Point 1909* (De Soto County, W. B. F., 1909).—On Locust Point, a sandy grassy point covered with palmetto trees at the north end of Charlotte Harbor, near the mouth of Peace River. The station is near a fishing camp, 12 meters from high-water mark, and is marked according to note 9,<sup>1</sup> except that there is no underground mark. Four palmetto trees marked with triangular blazes, with a spike at the center of each blaze, are at the following distances and azimuths from the station: 21 paces,  $324^{\circ} 50'$ ; 5 paces,  $12^{\circ} 18'$ ; 14 paces,  $54^{\circ} 18'$ ; and 14 paces,  $86^{\circ} 59'$ .

#### SUPPLEMENTARY POINTS.

*Punta Rasa Hotel cupola* (Lee County, W. B. F., 1909).—The flagstaff of the Punta Rasa Hotel.

*Middle Point 1909* (Lee County, W. B. F., 1909).—On Sanibel Island on the west side of the north end of San Carlos Bay, on a shell bank just at the edge of the woods at the north-

<sup>1</sup> See pp. 61-62.



eastern extremity of Middle Point, 6 meters from high-water mark and 1 meter west of the trail that runs along the shore. A station of the U. S. Engineers (see *Middle Point (U. S. E.)* below) is in the water 31 meters to the northwest. The station is marked by a cross in the top of a granite post set in a mass of concrete which projects 6 inches above the ground and is inscribed "C. & G. S. 1909." Three large mangroves, each marked with a triangular blaze with a spike at the center of the blaze, are at the following distances and azimuths from the station: 5.81 meters,  $329^{\circ} 19'$ ; 9.14 meters,  $7^{\circ} 09'$ ; and 14.36 meters,  $97^{\circ} 17'$ .

*Middle Point (U. S. E.)* (Lee County, W. B. F., 1909).—In the water 31.01 meters from Middle Point 1909 (see p. 72) in azimuth  $124^{\circ} 59'$ . The station is marked by an iron pipe  $2\frac{1}{2}$  inches in diameter.

*Punta Rasa astronomic station* (Lee County, E. S., 1874; 1909).—The center of the pier in the corner of the cowpen belonging to Mr. George R. Shultz east of the Punta Rasa Hotel.

*Shultz' house flagstaff* (Lee County, W. B. F., 1909).—The flagstaff on the house of Mr. George Shultz on the shore of San Carlos Bay about one-half mile below the Punta Rasa Hotel.

*Harris' house* (Lee County, J. H., 1892).—The pinnacle on the north gable of Dr. Harris's concrete dwelling house, on the south side of the Caloosahatchee River, opposite Harney Point.

*Rylander's house* (Lee County, J. H., 1892).—The west gable of Rylander's house, about 2 miles southwest of Fort Myers, on the southeast side of the Caloosahatchee River.

*Edison's house* (Lee County, J. H., 1892).—The apex of the northeast gable of Thos. A. Edison's house, just below Fort Myers.

*Edison's laboratory* (Lee County, J. H., 1892).—The center of the top of the smokestack on Edison's laboratory, just below Fort Myers.

*Parker's house* (Lee County, J. H., 1892).—The lightning rod on the pinnacle of Parker's house at Fort Myers.

*Fort Myers Methodist church* (Lee County, J. H., 1892).—The northeast corner of the top of the tower of the Methodist Church at Fort Myers.

*Fort Myers, Caloosa hotel* (Lee County, J. H., 1892; 1893).—Lost.

*Experimental station house* (Lee County, J. H., 1892).—The pinnacle on the west end of the house on the experimental station farm about 1 mile east of Fort Myers.

*West Jetty* (Lee County, J. H., 1892).—A pole nailed to a palmetto pile at the west end of the jetty south of Beautiful Island in the Caloosahatchee River.

*East Jetty* (Lee County, J. H., 1892).—A pole nailed to a palmetto pile at the east end of the jetty south of Beautiful Island in the Caloosahatchee River.

*Kennedy* (Lee County, W. R. T., 1859).—A pole fastened to the south gable of the old store of Kennedy & Darling, on the east shore of Charlotte Harbor, a little north of east of the northern end of Pine Island.

*Key Point* (De Soto County, W. R. T., 1859).—On the northern point of a mangrove key in the eastern part of Charlotte Harbor, directly east of Cape Haze. The station is marked by an iron cone, surrounded by four stakes, each 4 feet distant north, east, south, and west, respectively.

*Alligator* (De Soto County, W. R. T., 1860).—On a small key in the eastern part of Charlotte Harbor, about one-half mile south of the mouth of the Alligator River. The station is marked by a granite post, surrounded by four stakes, north, east, south, and west, respectively.

*Koonty* (De Soto County, W. R. T., 1860).—A pole lashed to the top of a tall, live oak tree, which stands on a small sand hill on a point southwest of the entrance to a large lagoon in the northern part of Charlotte Harbor.

*Punta Gorda astronomic station* (De Soto County, W. H. B., 1909).—The center of the concrete pier on the water front west of the Punta Gorda Hotel.

## GASPARILLA SOUND TO SARASOTA BAY.

## PRINCIPAL POINTS.

*Gasparilla* (De Soto County, W. H. T., 1859; 1895).—Lost.

*Flat* (De Soto County, W. R. T., 1860).—Near the center of a large sand flat southeast of a large bayou on the east side of Gasparilla Sound. The flat is covered at high tide and is about two hundred meters across. The station is marked by a granite post, surrounded by four stakes, each 6 feet distant, north, east, south, and west, respectively.

*Trepador* (De Soto County, W. R. T., 1860).—On the eastern shore of Gasparilla Sound, nearly due north of Gasparilla Pass. The palmetto and pine trees are near the shore in this vicinity. The station is marked by a granite monument, surrounded by four stakes, each 6 feet distant, north, east, south, and west, respectively.

*Hog* (De Soto County, J. H., 1879).—In the pine woods, about one-third mile back from the shore on the eastern side of the northern end of Gasparilla Sound. The marking of the station is not given. Three pine trees, each marked with a nail at the center of a triangular blaze, are, respectively, 8.8 meters south, 20.9 meters east, and 12.6 meters northwest from the station.

*Bocilla* (De Soto County, J. H., 1879; 1882).—On the Gulf beach about 800 meters north of Bocilla Pass, and 22 meters from high-water mark of a cove to the northeast. The station is marked by a brass nail in the top of a cedar stake.

*Lemon* (De Soto County, J. H., 1879; 1882).—At the southeast end of Lemon Bay, about 75 meters back of high-water mark at the edge of the grass back of the mangrove bushes along the shore, and about 100 meters east of the pine woods. The station is marked by a brass nail in the top of a cedar stub.

*Buttonwood* (De Soto County, J. H., 1879).—On the east shore of Lemon Bay, on a prominent point on the north side of the entrance to Crooked Creek, about  $1\frac{1}{4}$  miles from the south end of the bay. The station is marked by a triangle cut in the top of a buttonwood stump 4 meters from high-water mark.

*Speedwell* (De Soto County, J. H., 1879).—On the Gulf shore about 2 miles northwest of Bocilla Pass, on the narrow strip of land that separates the Gulf from an arm of Lemon Bay, 20 meters from high-water mark to the west. The station is on a sand hill and is marked by a nail in a wooden plug in the top of a screw pile.

*Merchant* (De Soto County, J. H., 1879).—On the east side of Lemon Bay on a low mangrove point just south of the mouth of a small creek, 10 meters from high-water mark. The station is marked by a cross in the top of a granite monument.

*Stump Pass* (De Soto County, J. H., 1879).—On the Gulf shore directly west of the mouth of Oyster Creek, and about one-half mile north of Stump Pass, 22 meters from high-water mark of the Gulf and 150 meters from high-water mark of a deep cove to the east. The station is marked by a cross in the top of a long iron screw pile. Two palm trees, each marked with a triangular blaze, are, respectively, 37.7 meters northeast and 30.1 meters east from the station.

*Lopez* (Manatee County, J. H., 1879).—On the east shore of Lemon Bay, about 150 meters northwest of Loper's house, 5 meters southeast of a fence line, and 5 meters back of high-water line. The station is marked by a brass nail in the top of an iron screw pile. Three palmetto trees, each marked with a triangular blaze, are, respectively, 8.4 meters north, 4.1 meters east, and 6.5 meters southeast from the station.

*Jacobs* (Manatee County, J. H., 1879).—On a sand ridge on the narrow strip of land between the Gulf and Lemon Bay about midway between Stump Pass and Rocky Point. The station is just back of Jacob's house and clearing and 20 meters from high-water mark of the Gulf. It is marked by a cross in the top of a long iron screw pile. Three palm trees, each marked by a nail in a triangular blaze, are, respectively, 19.8 meters southeast, 13.6 meters east, and 23 meters northeast from the station.

*Porpoise* (Manatee County, J. H., 1882).—On a prominent point on the eastern side of Lemon Bay, about a mile almost due north of Jacob's house and clearing, and 10 meters inside of



high-water line. The station is marked by a copper nail in the top of a cedar stake. Two palm trees, each marked with a nail at the center of a triangular blaze, are, respectively, 38.3 meters north and 27.8 meters east from the station.

*Rocky Point* (Manatee County, J. H., 1882).—On Rocky Point, a prominent point on the Gulf shore of the strip of land between Lemon Bay and the Gulf, about 6 meters from high-water mark. The station is marked by a cross in the top of an iron screw pile. Three palmetto trees, each marked by a nail in a triangular blaze, are, respectively, 19.7 meters northeast, 15.4 meters east, and 20.5 meters southeast from the station.

*Horse and Chaise* (Manatee County, J. H., 1882).—On Horse and Chaise Point, on the Gulf shore about 3 miles south of Caseys Pass, 25 meters from high water of the Gulf, and 50 meters from the shore of a pond to the east. The station is marked by a cross in the top of a marble monument. Two palm trees, each marked with a nail in a triangular blaze, are, respectively, 54.4 meters northeast and 34.4 meters east from the station.

*Keg* (Manatee County, J. H., 1878).—On the narrow strip of land between Little Sarasota Bay and the Gulf of Mexico a short distance north of the mouth of South Creek, 20 meters from high-water line of the Gulf. The station is marked by a nail in a wooden plug in the top of an iron screw pile. Triangular blazes on two palmetto trees are, respectively, 36.6 meters east and 35.7 meters north of the station.

*Northwest* (Manatee County, J. H., 1878).—On the narrow strip of land between Little Sarasota Bay and the Gulf, about 5 meters back of the second line of sand hills, 40 meters from high-water mark of the Gulf, and 100 meters from the shore of the bay. The station is marked by a brass nail in the top of a cedar stub.

*Huckleberry Camp* (Manatee County, J. H., 1878).—On the east side of the south end of Little Sarasota Bay about 200 meters from high-water line and about west of Mr. Blackburn's house. The station is marked by a brass nail in the top of a cedar stub. A pine tree marked with a triangular blaze is 16 meters west of the station.

*Webb* (Manatee County, J. H., 1878).—On a prominent point on the east shore of Little Sarasota Bay, near the edge of the bluff 20 meters west of Webb's house. The station is marked by a cross in the top of a block of granite.

*Quick* (Manatee County, J. H., 1878).—On the narrow strip of beach between Little Sarasota Pass and the Gulf, about  $1\frac{1}{4}$  miles south of the mouth of the pass, 5 meters from high-water mark of the Gulf, and 23 meters from the shore of the pass. The station is marked by a brass nail in the top of a cedar stub. There is a prominent clump of pines about 300 meters north of the station on the opposite side of the pass.

*Clower* (Manatee County, J. H., 1878).—Near the center of a small sand spit 9 meters from the end of a point on the east side of Little Sarasota Bay just north of the mouth of North Creek. The station is marked by a brass nail in the top of a cedar stub.

*Hull* (Manatee County, J. H., 1878).—At the edge of the pine woods just east of a deep cove on the east side of Little Sarasota Bay, about 200 meters north of the frame of an old house, about 300 meters northwest of Hull's house, and about 300 meters from the shore. The station is marked by a galvanized nail in the top of a cedar stub surrounded by three buried bottles, each 4 feet distant. Three pine trees, each marked by a nail at the center of a triangular blaze, are, respectively, 15.5 meters northwest, 10.6 meters southwest, and 13.9 meters southeast from the station.

*Little Sarasota* (Manatee County, J. H., 1878).—On Little Sarasota Point, the first prominent point north of Little Sarasota Pass, on the bluff 5 meters from the edge of the bank, and about 40 meters south of the cove in the north part of the point. The station is marked with a nail in the top of a cedar stub. Three bottles are buried, each 2 feet from the station.

*Young* (Manatee County, J. H., 1878; 1908).—Lost.

*Sarasota* (Manatee County, H. G. O., 1878; 1908).—This station is in a cluster of Spanish bayonets 19.4 meters from Sarasota 2 (see p. 78), in azimuth  $211^{\circ} 01'$ . It is marked by an iron screw pile projecting 4 inches above the ground surrounded by three bottles, each 2 feet distant.



*Cedar Point* (Manatee County, J. H., 1878; 1908).—Lost.

*New Pass* (Manatee County, J. H., 1878; 1908).—Lost.

*Stephens* (Manatee County, J. H., 1878).—On Stephens Point on the east side of Sarasota Bay, about 3 meters from the edge of the marsh to the east. The station is marked by a piece of granite surrounded by three buried bottles, each 2 feet distant.

*Mangrove* (Manatee County, J. H., 1878; 1908).—Lost.

*Bowlegs* (Manatee County, J. H., 1878; 1908).—Lost.

*Shell* (Manatee County, J. H., 1878; 1908).—Lost.

*Tom* (Manatee County, H. G. O., 1878; 1908).—On the west side of Sarasota Bay on a prominent mangrove point nearly opposite Coon Key and about  $2\frac{1}{2}$  miles south of Longboat Pass. It is about 3 meters back from the edge of the mangroves and is submerged at high tide. The station is marked according to note 9.<sup>1</sup>

*Key* (Manatee County H. G. O., 1878; 1908).—On the west end of Coon Key, in the eastern part of Sarasota Bay about 2 miles southeast of the town of Cortez. The key is small, covered with mangroves, and is overflowed at high tide. The station is marked according to note 9.<sup>1</sup>

*Longboat* (Manatee County, J. H., 1878; 1908).—Lost.

*Cut* (Manatee County, J. H., 1878).—On the east side of the northern end of Sarasota Bay, about a mile south of the entrance to Plamasola Sound, in pine woods very near the shore. In front of the station is a sand bar dry at low tide. The station is marked by a nail in the top of a cedar stub. There are two bottles each 2 feet from the station to the east and north, respectively. A nail in a pine stump is 2.8 meters north, and a nail in a pine stub is 1.2 meters to the southeast of the station.

*Anna Maria Key southeast base* (Manatee County, H. G. O., 1873; 1908).—This station has been destroyed.

*Mound* (Manatee County, J. H., 1878; 1908).—This station has been destroyed.

*Coral* (De Soto County, W. R. T., 1860; 1909).—On a small coon-oyster key or coral reef in the eastern part of Gasparilla Bay. The reef is the first one south of the channel into Catfish Bay, and is devoid of all vegetation and submerged at high tide. The station is marked by a cross in the top of a granite post embedded in a mass of concrete which projects a few inches above the surface and is inscribed "C. & G. S. 1909."

*Boca Nueva* (De Soto County, W. R. T., 1860; 1879).—Lost.

*Llano* (De Soto County, W. R. T., 1860).—On the eastern side of the northern end of Gasparilla Sound nearly due east of Boca Nueva. Tall grass extends between the station and the narrow strip of mangroves along the shore, which is about 300 meters distant. The station is marked by a granite post surrounded by four stakes which are north, east, south, and west, respectively. A small pine tree with two pieces of board nailed to it is a short distance southeast of the station.

*Palayo* (Lee County, W. R. T., 1860; 1909).—In the western part of the south end of Gasparilla Sound on a coon-oyster reef, just outside the mangroves on the east side of the southern one of the two keys known as the Two Sisters. The station is marked by a cross in the top of a granite post embedded in a mass of concrete which projects about 1 foot above the surface and is inscribed "C. & G. S. 1909." Three large black mangrove trees marked with triangular blazes with a spike at the center of each blaze, are at the following distances and azimuths from the station: 17.61 meters,  $38^{\circ} 15'$ ; 17.15 meters,  $59^{\circ} 21'$ ; and 24.13 meters,  $147^{\circ} 45'$ .

*Plow* (De Soto County, W. B. F., 1909).—On a shell ridge on the most western point of Plow Key, a large mangrove key, owned by Mr. George Collins of Kansas City, in the eastern part of the south end of Gasparilla Sound. The key is just east of the channel leading up the Sound to the fishing camps, the first camp being about one-third mile northwest of the station. The station is 15 meters from high water and is marked by a half-inch iron bolt in the top of a concrete post 16 inches square and 3 feet long, the top of which is marked with diagonal lines and inscribed "C. & G. S. 1909." Four trees marked with triangular blazes with a spike at the center of each blaze are at the following distances and azimuths from the station: 10.26 meters,  $91^{\circ} 51'$ ; 13.30 meters,  $246^{\circ} 26'$ ; 26.24 meters,  $266^{\circ} 40'$ ; and 10.44 meters,  $317^{\circ} 11'$ .

<sup>1</sup> See pp. 61-62.



*Gasparilla 1909* (Lee County, W. B. F., 1909).—Near the northern end of Gasparilla Island, about 400 meters south of Gasparilla Pass, and about 250 meters from high-water mark on the highest hill of the second line of sand hills from the Gulf, which are about 15 feet high and overgrown with grass and bushes. The station is about 300 meters west of the west end of the railroad trestle and about 150 meters north of a lone cluster of mangroves. It is marked by a half-inch iron bolt 15 inches long set in the top of a concrete post 10 inches in diameter and 6 feet long, which projects a few inches above the sand.

*Placida* (De Soto County, W. B. F., 1909).—The center of the peak of the cupola of the large office building of the Southern Investment Co. at Placida. The building is the only one of any size or importance in the town.

*Mound 2* (Manatee County, W. B. F., 1908).—About one-half mile north of the town of Cortez on the highest part and near the middle of a high shell mound on the point on the south side of the entrance to Palma Sola Bay from Sarasota Pass. The station is marked according to note 9.<sup>1</sup> A reference mark, described in note 11,<sup>1</sup> is 28.29 meters from the station.

*Anna Maria Key southeast base 2* (Manatee County, W. B. F., 1908).—One of the reference marks of *Anna Maria Key southeast base* (see p. 76) was recovered, and this new station was established as near the location of the old station as possible, probably within a tenth of a meter. The station is on the Gulf side of Anna Maria Key, about the center of the key in a north and south direction, and about 75 meters back from the shore line. It is about 400 meters west of the house of Mr. A. G. Brunsman in lot 1, sec. 4, T. 35, R. 16 E. The station is marked by a cross in the top of a granite monument surrounded by a mass of concrete, and underground by a spike in the top of a 4-inch drain tile filled with concrete. The reference mark, a spike in the top of a 4-inch tile filled and surrounded with concrete, is 20.010 meters from the station in azimuth 157° 43'.

*Cortez* (Manatee County, W. B. F., 1908).—On the east side of Sarasota Bay about one-fourth mile south of the town of Cortez on the western extremity of Hamilton Key. The key is entirely covered with mangroves and is overflowed at high tide. The station is marked according to note 9.<sup>1</sup>

*Longboat 2* (Manatee County, W. B. F., 1908).—About 400 meters north of Longboat Pass and about midway between the Gulf and Sarasota Bay on land owned by Mrs. Palmer, 7 meters from the west fence of her garden. The station is marked according to note 9.<sup>1</sup> A reference mark, described in note 11,<sup>1</sup> is 21.06 meters from the station in azimuth 8° 18'.

*Bolees Creek* (Manatee County, W. B. F., 1908).—On the east side of Sarasota Bay, on a point on the mainland just south of the mouth of Bolees Creek. The station is on hard land among the pines, 10 meters from the bluff shore and 8 meters north of a path leading from a landing to a deserted house, about 65 meters distant. The station is marked according to note 9.<sup>1</sup> A reference mark, described in note 11,<sup>1</sup> is in line to the south gable of the house, 22.66 meters from the station in azimuth 283° 04'.

*Long Bar Point* (Manatee County, W. B. F., 1908).—On a shell ridge on the south side of the small key that forms the western extremity of Long Bar Point, which is the first prominent point north of Bolees Creek on the east side of Sarasota Bay. The station is just south of a small clump of mangroves, the only mangroves on the point, and is marked according to note 9<sup>1</sup> except that there is no underground mark.

*Whale Key* (Manatee County, W. B. F., 1908).—In the western part of Sarasota Bay on the east side of Whale or Mangrove Key just at the entrance to Buttonwood Harbor, and about 15 meters from the shore. The key is covered with a dense growth of mangrove, and is completely submerged at high tide. The station is marked according to note 9,<sup>1</sup> except that there is no underground mark.

*Cedar Point 2* (Manatee County, W. B. F., 1908).—On Cedar Point, a low narrow sand and shell spit covered with a growth of mangroves and palmettos, between Sarasota Bay and Sarasota Harbor. The station is about 60 meters from the southern end of the point about 10 meters from the shore line to the west and the same distance from the shore line to the east. It is marked according to note 9.<sup>1</sup>

<sup>1</sup> See pp. 61-62.



*New Pass 2* (Manatee County, W. B. F., 1908).—On the west side of Sarasota Bay just north of the mouth of New Pass and on the north side of Quick Point, which is a low point covered with mangroves and completely submerged at very high tide. The station is about 8 meters from ordinary high water and 100 meters northwest of the mouth of a small bayou. The station is marked according to note 9,<sup>1</sup> except that there is no underground mark.

*Sarasota 2* (Manatee County, W. B. F., 1908).—Just south of the second line of sand hills on the north side of Sarasota Point, which is just south of the outer entrance to Big Sarasota Pass. There are some low grassy sand hills west of the station. The station is at the edge of the palmetto growth 150 meters from high water mark, and is marked according to note 9.<sup>1</sup> A reference mark, described in note 11,<sup>1</sup> is 28.18 meters from the station in azimuth  $285^{\circ} 30'$ .

*Young 2* (Manatee County, W. B. F., 1908).—On a shell point on the east side of the south end of Sarasota Bay near the north end of the cut that leads into Little Sarasota Bay. The station is on a shell bank near the shore on land owned by Mr. E. Peck about 150 meters south of his house, 1.3 meters west of the fence running along the shore and 3 meters northwest of an angle in the fence. It is marked according to note 9.<sup>1</sup>

#### SUPPLEMENTARY POINTS.

*Long Pine* (Manatee County, W. B. F., 1908).—A pole in a very prominent pine tree on Fishing Point on the south side of Big Sarasota Pass. The station is not marked on the ground.

#### TAMPA BAY.

#### PRINCIPAL POINTS.

*Anna Maria Key northwest base* (Manatee County, H. G. O., 1873; 1908).—On the Gulf side of Anna Maria Key about one-half mile southwest of the house of Mr. S. C. Cobb, which is on the Bay side of the key. It is about 100 meters back from the shore line and on land belonging to Capt. Jones, who lives east of the station on the Bay shore of the key. The station is marked by a cross in the top of a granite monument surrounded by a mass of concrete and underground by a spike in the top of a 4-inch tile filled with concrete. The reference mark, a spike in the top of a 4-inch tile filled and surrounded with concrete, is 20.00 meters from the station in azimuth  $337^{\circ} 43'$ . The diagonal lines from four iron pipes each 4 feet distant intersect at the station.

*Nell* (Manatee County, J. H., 1878).—On the west shore of Perico Island at the entrance to Sarasota Bay and on the first mangrove point south of Perico Point. The station is at ordinary high water and is marked by a copper nail in a cedar stub. Two reference marks, each a copper nail in a mangrove tree, are at the following distances from the station: 3.8 meters northeast and 2.9 meters southeast.

*Perico* (Manatee County, H. G. O., 1873; 1908).—On the northwest end of Perico Island. It is marked by a nail in the top of a live oak post surrounded by four iron pipes the diagonals from which intersect at the station. No trace of the station could be found in 1908.

*Palm* (Manatee County, H. G. O., 1873; 1908).—This station has been destroyed, due to the receding of the shore line.

*Terraceia* (Manatee County, H. G. O., 1873; 1908).—On the northwest side of Terraceia Island and marked by a nail in the top of a cedar post. No trace of this station could be found in 1908.

*Pinelos* (Hillsboro County, H. G. O., 1873; 1908).—On Point Pinelos on the north shore of Tampa Bay and marked by a nail in the top of a cedar post. No trace of this station could be found in 1908, and it has probably been destroyed by the receding of the shore line.

*Roach* (Hillsboro County, H. G. O., 1873; 1908).—On Cockroach Point, a narrow strip of land between Tampa Bay and a creek, and marked by a nail in the top of a cedar post. No trace of the station could be found in 1908.

<sup>1</sup> See pp. 61-62.



*Terraceia 2* (Manatee County, W. B. F., 1908).—On a low ridge about 20 meters wide on a shell point on the western side of Terraceia Island, about  $1\frac{1}{4}$  miles northeast of the southwest point of the island. The station is about 15 meters from high-water mark and is marked according to note 9.<sup>1</sup>

*Palm 2* (Manatee County, W. B. F., 1908).—On firm ground at the northern extremity of Anna Maria Key and about 50 meters east of the Bean house, which is the only house on this part of the key. The station is 125 meters from the west or Gulf shore, 150 meters from the north shore, and 75 meters from the east or bay shore, high-water mark being considered the shore line in each case. The station is marked by a spike in the top of a 4-inch tile, which is filled and surrounded with concrete, and underground by a spike in the top of a concrete post buried 3 feet below the surface of the ground. The top of the surface mark is inscribed "C. & G. S. 1908." The reference mark, a spike in the top of a concrete post, is 21.780 meters from the station in azimuth  $295^{\circ} 09'$ , and the chimney of Bean's house is in azimuth  $95^{\circ} 02'$ .

*Perico 2* (Manatee County, W. B. F., 1908).—On hard ground on the north point of Perico Island about 15 meters from high-water mark. There is a marsh back of the station and beyond the marsh the point is covered with mangroves, pines, and palmettos. The station is marked according to note 10.<sup>1</sup> A reference mark, described in note 11,<sup>1</sup> is 19.22 meters from the station in azimuth  $302^{\circ} 09'$ .

*Pinelos 2* (Hillsboro County, W. B. F., 1908).—On Pinelos Point on the north side of Tampa Bay in the northwest quarter of section 18, T. 32, R. 17 E., on land belonging to the Forest estate. The station is among the pines 40 meters from the bluff shore and 30 meters southeast of the county road from St. Petersburg to Maximo Point. It is marked according to note 9.<sup>1</sup> A reference mark, described in note 11,<sup>1</sup> is in a fence line 23.34 meters from the station in azimuth  $161^{\circ} 09'$ .

*Cockroach (U. S. E.)* (Hillsboro County, W. B. F., 1908).—On Cockroach Island, a long narrow island 1 mile from the mainland on the eastern side of Tampa Bay. The island is not more than 25 meters wide and is covered with mangroves and palmettos. The station is about 15 meters from high-water mark, 10 meters outside the palmettos and 400 meters south of the north point of the island. It is marked by a 1-inch iron pipe 4 feet long at the center of a 4-inch tile embedded in a block of concrete 20 inches square and 2 feet deep. The top of the concrete is inscribed "C. & G. S. 1908" and the iron pipe projects 10 inches above the surface.

*Ant 2* (Hillsboro County, W. B. F., 1908).—On a point on the west shore of Tampa Bay about midway between Point Pinelos and St. Petersburg and about one-third the distance from Little Bayou to Big Bayou. The station is on firm ground among palmetto trees 40 meters from the low bluff shore and 400 meters south of the most eastern part of the point. It is marked according to note 9.<sup>1</sup> A reference mark, described in note 11,<sup>1</sup> is 20.02 meters from the station in azimuth  $118^{\circ} 33'$ .

*Indian Hill 2* (Hillsboro County, W. B. F., 1908).—On the highest part of a very prominent shell mound on the east side of Tampa Bay about 3 miles south of the Little Manatee River. The mound is about 40 feet high, with no trees growing on it except at its base. There is a deserted house on the north slope of the mound and a grave about 2 meters southeast of the station. The station is marked according to note 9.<sup>1</sup>

*Mangrove (U. S. E.)* (Hillsboro County, W. B. F., 1908).—At the edge of the mangroves at the western extremity of Mangrove Point, which is on the eastern shore of Tampa Bay, about 2 miles north of the Little Manatee River. The station is marked by a 1-inch iron pipe set in cement in a 2-inch iron pipe, which in turn, is at the center of a 4-inch tile, the whole embedded in a block of concrete 20 inches square and 22 inches deep. The top of the concrete is inscribed "C. & G. S. 1908" and the iron pipes project 8 inches above the surface. A reference mark, a 4-inch tile set in concrete, is 22.31 meters from the station in azimuth  $325^{\circ} 36'$ .

*Cedar Point (U. S. E.)* (Hillsboro County, W. B. F., 1908).—On the island just north of the entrance to Papys Bayou, about 1500 meters north of Papys Point and 250 meters south of the north end of the island. There is a large pond or bayou west of the station with a fringe of mangroves and palmettos along the shore, and the station is near the middle of the strip of land

<sup>1</sup> See pp. 61-62.

about 25 meters wide which separates this pond from the bay. The station is marked by an iron pipe  $1\frac{1}{2}$  inches in diameter at the center of a 4-inch tile embedded in a block of concrete 19 inches square and 24 inches deep. The concrete projects 4 inches above the ground and is inscribed "C. & G. S. 1908" and the iron pipe projects about 8 inches above the concrete. Four 1-inch iron pipes are each  $2\frac{1}{2}$  feet from the station north, east, south, and west, respectively.

*Gadsden 2* (Hillsboro County, W. B. F., 1908).—On Gadsden Point on the west shore of Hillsboro Bay, on firm ground among pine and palmetto trees, about 40 meters from high-water mark. There is another point about 500 meters west of the station. The station is marked according to note 9.<sup>1</sup> A reference mark, described in note 11,<sup>1</sup> is 18.47 meters from the station in azimuth  $146^{\circ} 31'$ .

*Alafia 2* (Hillsboro County, W. B. F., 1908).—On a well-known shell mound on the east shore of Hillsboro Bay, on the south side of the entrance to Bull Frog Creek and just south of the Alafia River. The station is on the highest part and near the west end of the mound, but may soon be destroyed by the digging away of the shells. It is marked according to note 9.<sup>1</sup>

*Ball* (Hillsboro County, W. B. F., 1908).—On a sandy, grassy point on the east side of Hillsboro Bay about  $1\frac{1}{2}$  miles south of Dulaneys Creek and about 80 meters from high-water mark. The station is between two round ponds, one about 100 meters north and the other about 150 meters south, the latter being connected with the bay by a deep, narrow slough on the north edge of which 10 meters from high-water mark is the United States Engineers' station *Ball*. There are three tall palmettos on the point, the nearest or north one about 100 meters distant and the farthest or south one 250 meters distant. There are no other trees near the station, the edge of the pines being about 600 meters distant. The station is marked according to note 9.<sup>1</sup> A reference mark, described in note 11,<sup>1</sup> is 17.92 meters from the station in azimuth  $216^{\circ} 41'$ .

*Catfish Point (U. S. E.)* (Hillsboro County, W. B. F., 1908).—On Catfish Point on the west shore of Hillsboro Bay just back of where a long shoal makes out into the bay, bare at low water. The station is on firm ground about 300 meters south of the house of Mr. M. T. Jones and about 8 meters from high-water mark. It is marked by an iron pipe  $1\frac{1}{2}$  inches in diameter and 3 feet long at the center of a 4-inch tile embedded in a round block of concrete 20 inches in diameter and 2 feet long. The concrete projects 4 inches above the ground and is inscribed "C. & G. S. 1908" and the iron pipe projects 4 inches above the concrete. Two half-inch iron pipes are each 1 foot distant, one north and the other south. A reference mark, described in note 11,<sup>1</sup> is 26.02 meters from the station in azimuth  $116^{\circ} 01'$ .

*Ballast Point 2* (Hillsboro County, W. B. F., 1908).—On the northeast corner of the upper east balcony of the Ballast Point hotel, 3 feet  $9\frac{1}{2}$  inches from the north edge and 3 feet 7 inches from the east edge of the balcony and 3 feet 11 inches from the corner post. It is marked with four brass screws in the floor, one for center and three forming a triangle about it.

*Picnic Island* (Hillsboro County, W. B. F., 1908).—About one-half mile south of Port Tampa dock on the highest part of a sand ridge on the western extremity of Picnic Island about one-half mile south of the north end of the island. The ridge is covered with mangroves and palmettos and there is a pond just back of the ridge. The station is about 300 meters south of an old fish camp, about 15 meters from high-water mark and about 12 meters east of a lone cedar tree. The station is marked according to note 9.<sup>1</sup>

*Dave* (Hillsboro County, W. B. F., 1908).—On the eastern shore of Old Tampa Bay, about 2 miles north of Port Tampa dock. The station is on sandy ground covered with short grass and is 20 meters from high-water mark, 100 meters south of a slough that makes into a small pond nearly dry at low water, and about 100 meters from the edge of the pine and palmetto woods. The station is marked according to note 10.<sup>1</sup> A reference mark, described in note 11,<sup>1</sup> is 29.05 meters from the station in azimuth  $345^{\circ} 56'$ .

*Pete* (Hillsboro County, W. B. F., 1908).—On the west side of Old Tampa Bay, about 2 miles southeast of Cedar Point, and on the southern side of the entrance to a large shallow

<sup>1</sup> See pp. 61-62.



bayou. The point is a long narrow sand ridge, covered with mangroves, and separated from firm ground by a wide marsh, which is probably submerged at high tide. The station is 50 meters south of the end of the point, 10 meters from high water, and is marked according to note 9.<sup>1</sup>

*Gun* (Hillsboro County, W. B. F., 1908).—On the east side of Old Tampa Bay about 100 meters south of the mouth of a small stream known as Gun Branch and about  $1\frac{1}{2}$  miles south of Frazer's beach. The station is on solid ground just at the edge of the pine woods 25 meters from high-water mark. It is marked according to note 9.<sup>1</sup> A reference mark, described in note 11,<sup>1</sup> is 26.31 meters from the station in azimuth  $295^{\circ} 27'$ .

*Dog* (Hillsboro County, W. B. F., 1908).—About one-third of a mile north of the southern end of an island called Cedar Point on the west side of Old Tampa Bay, on the highest point of a strip of land about 12 meters wide between the bay on the east and a pond on the west. The island is covered with mangroves and there are a few cedars north of the station. The station is marked according to note 10.<sup>1</sup>

*Rocky Point* (Hillsboro County, W. H. B., 1906; 1908).—On the western corner of the point of land known as Rocky Point in Old Tampa Bay, 20.0 meters from the end of the main part of the point, 13.0 meters from the north shore line, and 9.5 meters from the southwest shore line. A house on the south side of the point is about 150 meters distant. The station is marked by a nail in the top of a 4-inch tile which is filled and surrounded with concrete and underground by a nail in the cement stopper of a bottle surrounded with concrete. The reference mark, a 4-inch tile which is filled and surrounded with concrete, projects 3 inches above the ground, and is 25.560 meters from the station in azimuth  $253^{\circ} 49'$ .

#### SUPPLEMENTARY POINTS.

*Manatee 2* (Manatee County, W. B. F., 1908).—On the north point of a low, swampy island covered with mangroves and palmettos and known as Sneeds Island, on the north side of the entrance to the Manatee River. The station is on a shell bank on the river side of the point about 25 meters from high-water mark, 20 meters south of an old fish camp, and about 100 meters from Mr. Emerson's house, which is also on the river side of the point. The station is marked according to note 10.<sup>1</sup>

#### BOCA CEIGA BAY TO CLEARWATER HARBOR.

##### PRINCIPAL POINTS.

*Turn* (Hillsboro County, H. G. O., 1873).—On the point on the north side of the inner end of Pass a Grille near the southern end of Boca Ceiga Bay. The station is marked by a nail in the top of a 10-inch cedar post.

*Shell Point* (Hillsboro County, H. G. O., 1873).—On Maxima Point just east of Bird Island on the east side of the southern end of Boca Ceiga Bay. The station is marked by a nail in the top of a 11-inch cedar post.

*Bird* (Hillsboro County, H. G. O., 1873).—On the north point of Bush Island at the south end of Boca Ceiga Bay. The station is marked by a nail in the top of a large post.

*Point* (Hillsboro County, H. G. O., 1873).—On a hook-shaped point on the east side of Boca Ceiga Bay, just across the bay southwest from Veteran City. The station is marked by a nail in the top of a 9-inch live-oak post.

*Oyster* (Hillsboro County, H. G. O., 1873).—On an oyster shoal about 30 feet in diameter off a prominent point on the west side of Boca Ceiga Bay. The shoal is covered at high water. The station is marked by a pine stake surrounded by four pieces of iron pipe about 1 foot apart. This station could not be recovered in 1908.

*Sand* (Hillsboro County, H. G. O., 1873).—On a prominent point on the east or mainland shore of Boca Ceiga Bay just west of Veteran City. The station is marked by a pine stub surrounded by four iron pipes each 1 foot distant.

*Mound* (Hillsboro County, H. G. O., 1873).—On the southeast side of Roost Island, a small island in the western part of Boca Ceiga Bay. The station is marked by a pine stub.

*Crab* (Hillsboro County, H. G. O., 1873).—On a prominent point on the east side of Boca Ceiga Bay. The station is marked by a copper tack in a pine stub surrounded by four iron pipes, the diagonal lines from which intersect at the station. A nail in an 8-inch mangrove stump is one-half meter from the station in azimuth  $168^{\circ} 44'$ .

*Queen* (Hillsboro County, H. G. O., 1873).—On the southeastern side of an island in the western part of Boca Ceiga Bay. The station is marked by a pine stub.

*Cedar* (Hillsboro County, H. G. O., 1873).—On the mainland or eastern shore of Boca Ceiga Bay. The station is marked by a pine stub.

*Sague* (Hillsboro County, H. G. O., 1873).—On a small point extending southward from the mainland or eastern shore of Boca Ceiga Bay just south of the entrance to Long or Four Mile Bayou. The station is marked by a nail in the top of a 7-inch cedar post.

*Snake* (Hillsboro County, H. G. O., 1873).—On the eastern point of an island in Johns Pass in the northeastern part of Boca Ceiga Bay. The station is marked by a pine stub.

*Turtle Crawl* (Hillsboro County, H. G. O., 1873; 1908).—On a point on the mainland or eastern shore of Boca Ceiga Bay just north of the entrance to Long or Four Mile Bayou. The station is marked by a pine stub. No trace of the station could be found in 1908, and it has probably been destroyed by the receding of the shore line.

*Mast* (Hillsboro County, H. G. O., 1873).—On the east side of an island in the western part of Boca Ceiga Bay and directly across the bay from Turtle Crawl Point. The station is marked by a small stub.

*Double* (Hillsboro County, H. G. O., 1873; 1908).—On a flat covered by high water just off a prominent point on the mainland or eastern shore of Boca Ceiga Bay. The station is marked by an old pine stump with two iron pipes each 16 inches distant on opposite sides of the stump. No trace of the station could be found in 1908.

*Pole* (Hillsboro County, H. G. O., 1873).—On the eastern side of a small island in the western part of Boca Ceiga Bay. The station is marked by a mangrove stump, which is surrounded by water at high tide.

*Stump* (Hillsboro County, H. G. O., 1873).—On a small shell island in the eastern part of Boca Ceiga Bay. The station is marked by a pine stub.

*Extra* (Hillsboro County, H. G. O., 1873).—On the northeastern part of a prominent point on the west shore of Boca Ceiga Bay. The station is marked by a hole in the top of a 6 by 6 inch pine post.

*Crow* (Hillsboro County, H. G. O., 1873).—On a shell bank at the end of a curved point on the mainland or eastern shore of the northern part of Boca Ceiga Bay. The station is marked by a small pine stub.

*Pass* (Hillsboro County, H. G. O., 1873).—On the eastern side of an island in the western part of the northern end of Boca Ceiga Bay. The station is marked by a hole in the top of a 6 by 6 inch pine post.

*Faint* (Hillsboro County, H. G. O., 1873).—On a small shell bank on the mainland shore at the north end of Boca Ceiga Bay. The station is marked by a cross in the top of a 6 by 6 inch pine post.

*Indian* (Hillsboro County, H. G. O., 1873).—On a small shifting sand hill on the east neck of Indian Pass. The station is marked by a small pine stub.

*Fisherman* (Hillsboro County, H. G. O., 1873).—On a point of the mainland opposite Indian Pass and near a fish house. The station is marked by a nail in an auger hole in the top of a pine post.

*Cutter* (Hillsboro County, H. G. O., 1873; 1908).—On the narrow neck of land between Indian Pass and the Gulf. The station is marked by a copper tack in the top of a pine stub surrounded by four iron pipes each one foot distant, the diagonal lines from which intersect at the station. No trace of this station could be found in 1908.



*Twice* (Hillsboro County, H. G. O., 1873).—On the Gulf shore of Sand Key about one-half mile north of Indian Pass. The station is marked by a nail in the top of a live-oak post.

*Creek* (Hillsboro County, H. G. O., 1873).—On the mainland shore of the Narrows on the point just south of the mouth of a small creek. The station is marked by a nail in the top of a 6-inch live-oak post.

*Cute* (Hillsboro County, H. G. O., 1873).—On the Gulf shore of Sand Key, just west of some clumps of scrub palms. The station is marked by a nail in the top of a 5-inch live-oak post.

*Pines* (Hillsboro County, H. G. O., 1873).—On a prominent point on the mainland or eastern shore of the Narrows. The station is marked by a nail in the top of a 9-inch live-oak post.

*Narrows* (Hillsboro County, H. G. O., 1873).—On the Gulf shore of Sand Key. The station is marked by a nail in the top of a 4-inch mangrove stump.

*Shortest* (Hillsboro County, H. G. O., 1873).—On a point on the mainland or east shore of the Narrows. The station is marked by a nail in the top of a 9-inch live-oak post which projects 15 inches above the ground.

*Short* (Hillsboro County, H. G. O., 1873).—On Sand Key about midway between the Gulf and the Narrows. The station is marked by a nail in the top of an 8-inch live-oak post.

*Indian Rock* (Hillsboro County, H. G. O., 1873; 1906).—On the mainland at the narrowest part of the Narrows on the bank just back of the rocky point. The station is marked by a hole in the top of a 6-inch live-oak post. No trace of the station could be found in 1906.

*Polaris* (Hillsboro County, H. G. O., 1873).—On a sand ridge on the Gulf side of Sand Key. The station is marked by a hole in the top of a live-oak post. Two pieces of iron pipe are, respectively, 22 paces south and 10 paces north.

*Thompson* (Hillsboro County, H. G. O., 1873; 1906).—On the mainland shore of Clearwater Harbor at the entrance to the Narrows and about one-fourth mile south of Mears landing and fish house (originally known as Thompson's landing). The station is marked by a nail in the top of a 6-inch live-oak post which in 1906 was within 8 inches of the shore line. Two reference marks, each consisting of a nail in the top of a concrete post which projects 3 inches above the ground and of an underground mark, a bottle with a cement stopper, are located as follows: One 18.457 meters from the station in azimuth  $288^{\circ} 47'$  and the other 34.265 meters in azimuth  $288^{\circ} 58'$ . An 18-inch pine is on the edge of a swamp 45 meters from the station and in line with the reference marks and the station. A blazed pine is 6.20 meters north of the near reference mark, 15.25 meters northwest of the far reference mark, and 21 paces from the station in azimuth  $272^{\circ} 13'$ .

*Sands* (Hillsboro County, H. G. O., 1873; 1906).—On the north end of a small sand ridge on the Gulf side of Sand Key. The station is marked by a hole in the top of a large post. No trace of the station could be found in 1906.

*Sand Key south base* (Hillsboro County, H. G. O., 1873; 1910).—On the Gulf coast of Sand Key about 2 miles south of Little Pass and about one-fourth mile south of a very dense group of palmettos. It is on a sand ridge, 28 paces from low water and about 2 meters east of the crest of the ridge. The station is marked by a standard disc station mark in the top of a 6-inch tile which is filled with concrete and projects about 10 inches above the ground. Below the tile is the original surface mark, a cross in the top of a granite monument. A reference mark, a small drill hole in the top of a concrete post which projects about 5 inches above the ground, is 26.650 meters from the station in azimuth  $296^{\circ} 43'$ . This reference mark is in line with a large blazed pine tree 42.5 meters from the station, one of the most prominent trees on the key. Another reference mark, a standard cap station mark screwed to the top of a 3-inch iron pipe which projects 1 foot above the ground, is 24.034 meters from the station in azimuth  $255^{\circ} 49'$ .

*Prickly Point* (Hillsboro County, H. G. O., 1873; 1906).—On Prickly Point on the east shore of Clearwater Harbor. The station is marked by a nail in the top of a 7-inch live-oak post. No trace of the station could be found in 1906, and it has probably been washed away.



*Sand Key north base* (Hillsboro County, H. G. O., 1873; 1906).—This station has been destroyed.

*Clearwater Harbor astronomic station* (Hillsboro County, E. S., 1873; 1906).—This station has been destroyed.

*Clearwater Bluff* (Hillsboro County, G. H. B., 1861; 1906).—This station has been destroyed.

*Tomlinson* (Hillsboro County, W. B. F., 1908).—On the west side of Pine Key just opposite the landing at Pass a Grille, among the pine trees 125 meters from high-water mark. The station is directly beneath a 70-foot skeleton observation tower built by Mr. Tomlinson, who owns the land in the vicinity of the station. It is marked according to note 9.<sup>1</sup>

*Maximo* (Hillsboro County, W. B. F., 1908).—On the western extremity of Maximo Point, about 30 meters from high-water mark. The station is marked according to note 9.<sup>1</sup> A reference mark, described in note 11,<sup>1</sup> is 15.12 meters from the station in azimuth 203° 05'.

*Oyster 2* (Hillsboro County, W. B. F., 1908).—This station is identical with a station of the United States Engineers. It is on the east point of a small mangrove key on the west side of Boca Ceiga Bay, about midway between Blind Pass and Pass a Grille and about 8 meters from high-water mark. The station is marked by an iron pipe at the center of a 4-inch tile embedded in a mass of concrete 30 inches in diameter and 2 feet deep. The concrete projects 6 inches above the ground and is inscribed "C. & G. S. 1908", and the iron pipe projects 15 inches above the concrete.

*South Point* (Hillsboro County, W. B. F., 1908).—On the west shore of Boca Ceiga Bay on the first point south of Deadmans Key. The point is low and wet and is covered with a dense growth of mangroves. The station is on a narrow sand ridge near the shore and is marked according to note 9.<sup>1</sup> A reference mark described in note 11<sup>1</sup> is 11.06 meters from the station in azimuth 51° 42'. A station of the United States Engineers marked by a 1-inch iron pipe driven into the sand is close to the water line 6.67 meters from the station in azimuth 298° 38'.

*Bear Creek* (Hillsboro County, W. B. F., 1908).—On the east side of Boca Ceiga Bay opposite Deadmans Key on the western extremity of a low point covered with grass and a few mangroves just north of Bear Creek. The station is on the most solid part of the point about 20 meters from the shore line and about 100 meters south of a small bayou leading into the marsh back of the point. The station is marked according to note 9.<sup>1</sup>

*Devils Elbow* (U. S. E.) (Hillsboro County, W. B. F., 1908).—On the sand flat on the south side of a mangrove key near the northeast end of the channel known as Blind Pass leading into Boca Ceiga Bay from the Gulf. The channel along the side of the key is very crooked and is known as the Devils Elbow. The station is in the water 200 feet from the edge of the mangroves and is marked by an iron pipe 1½ inches in diameter driven into the sand.

*Between* (Hillsboro County, W. B. F., 1908).—On the mainland shore of Boca Ceiga Bay on a point nearly opposite Blind Pass and between two bayous 150 meters north and 100 meters south, respectively. The station is on solid ground among scattering pines about 20 meters from high-water mark and is marked according to note 9.<sup>1</sup> A large pine marked with a triangular blaze is 6.71 meters from the station in azimuth 163° 19'. A station established by the United States Engineers marked by a 1-inch iron pipe driven into the ground is near high-water mark 15.92 meters from the station in azimuth 50° 14'.

*Johns Pass* (U. S. E.) (Hillsboro County, W. B. F., 1908).—On the highest part of the little grassy sand key near a small mangrove key one-half mile east of the mouth of Johns Pass. The station is marked by an iron pipe 1½ inches in diameter at the center of a 4-inch tile embedded in a mass of concrete 3 feet in diameter and 2 feet deep. The concrete projects 4 inches above the ground and is inscribed "C. & G. S. 1908," and the iron pipe projects 18 inches above the concrete.

*Turtle* (Hillsboro County, W. B. F., 1908).—On the mainland shore of Boca Ceiga Bay at the extremity of Turtle Crawl Point on firm ground among the palmettos and small bushes 60 meters from high-water mark. The station is marked according to note 9.<sup>1</sup>

<sup>1</sup> See pp. 61-62.



*Gulf* (Hillsboro County, W. B. F., 1908).—On a sandy grass-covered plain on the strip of land between Boca Ceiga Bay and the Gulf, about midway between Johns Pass to the south and Indian Pass to the north and about 65 meters from the bluff shore of the Gulf. There is a lone palmetto about 150 meters north of the station about the same distance from the Gulf shore as the station, and on the bay shore there is one tall palmetto and a cluster of three south of it. The station is marked according to note 9.<sup>1</sup> Two reference marks, described in note 11,<sup>1</sup> are in line to the lone palmetto on the bay shore, one 32.85 meters from the station in azimuth  $249^{\circ} 22'$  and the other 45.50 meters in azimuth  $249^{\circ} 29'$ .

*Double 2* (Hillsboro County, W. B. F., 1908).—On the extremity of the first sandy point north of Turtle Crawl Point on the east side of Boca Ceiga Bay 15 meters from high-water mark and just clear of the low trees. The station is marked according to note 9.<sup>1</sup> A reference mark, described in note 11,<sup>1</sup> is in a cluster of small oaks 96.42 meters from the station in azimuth  $184^{\circ} 48'$ .

*Wait* (*U. S. E.*) (Hillsboro County, W. B. F., 1908).—On the west shore of Boca Ceiga Bay, on the first prominent mangrove point south of Rhodes house. The station is at the edge of the mangroves and is submerged at high tide. It is marked by an iron pipe  $1\frac{1}{2}$  inches in diameter at the center of a 4-inch tile embedded in a mass of concrete 20 inches in diameter and 2 feet deep. The concrete is inscribed "C. & G. S. 1908," and the iron pipe projects 15 inches above the surface.

*Oak* (Hillsboro County, W. B. F., 1908).—On the mainland shore of Boca Ceiga Bay on the first well-defined point northwest of Mears Landing and about one-third mile distant. The station is among the small oaks and palmettos 40 meters from the bluff shore and is marked according to note 9.<sup>1</sup>

*Rhodes* (Hillsboro County, W. B. F., 1908).—This station is identical with a United States Engineers' station, the name of which is not known. It is on the east side of Indian Pass on the narrow strip of land between the pass and Boca Ceiga Bay 25 meters from high-water mark of the pass and about 125 meters south of Rhodes' house. The station is marked by an iron pipe  $1\frac{1}{2}$  inches in diameter at the center of a 4-inch tile embedded in a mass of concrete 20 inches in diameter and 2 feet deep. The concrete projects 4 inches above the ground and is inscribed "C. & G. S. 1908."

*Fisherman* (*U. S. E.*) (Hillsboro County, W. B. F., 1908).—On the east shore of Boca Ceiga Bay opposite the inner end of Indian Pass and the Sweat fish camp. The station is on firm ground at the edge of the palmettos and is marked by an iron pipe  $1\frac{1}{2}$  inches in diameter at the center of a 4-inch tile embedded in a mass of concrete 20 inches in diameter and 2 feet deep. The concrete projects 2 inches above the ground and is inscribed "C. & G. S. 1908." A reference mark, described in note 11,<sup>1</sup> is on firm ground among the palmettos 16.99 meters from the station in azimuth  $222^{\circ} 01'$ .

*Sweat* (Hillsboro County, W. B. F., 1908).—This station is one of the United States Engineers stations of 1907, the name of which is not known. It is on a sand hill on the west side of Indian Pass on the narrow strip of land between the pass and the Gulf, 150 meters north of the Sweat fish camp and 10 meters southeast of a well with a wooden curb. The station is marked by an iron pipe embedded in a mass of concrete 20 inches in diameter and 2 feet deep which projects 4 inches above the ground and is inscribed "C. & G. S. 1908."

*Kay* (Hillsboro County, W. H. B., 1906).—On a crescent-shaped sand bar at the extremity of McKays Point, on the east side of the southern end of Clearwater Harbor. The station is marked by a nail in the top of a 4-inch tile which is filled with concrete and projects 10 inches above the sand. A reference mark similar to the station mark is on the mainland shore directly opposite the end of the spit, 6 meters back from the shore line and 159.12 meters from the station in azimuth  $292^{\circ} 49' 43''$ . A blazed pine is 4.83 meters east of the reference mark in line with the reference mark and the station.

*Prickly* (Hillsboro County, W. H. B., 1906; 1910).—On the mainland shore of Clearwater Harbor, on a sand spit known as Prickly Point. The spit extends in a southwesterly direction and a narrow strip of it about 5 meters wide and 100 meters long is above high water and is

<sup>1</sup> See pp. 61-62.

covered with grass and a few scrub bayonets. The station is near the outer edge of the grass and is marked by a standard disk station mark in the top of a 6-inch tile which is filled with concrete and underground by a nail in the cement stopper of a bottle. The reference mark, a standard cap station mark, screwed to the top of a 3-inch iron pipe which projects about a foot above the surface of the ground, is 31.899 meters from the station in azimuth  $243^{\circ} 17'$ .

*Bellevue* (Hillsboro County, W. H. B., 1906; 1910).—About 2 miles south of the town of Clearwater near the center of a circle of palm trees, 100 paces south-southwest of the southwest corner of the Bellevue hotel. The station is marked by a nail in the top of a 4-inch tile which is filled and surrounded with concrete and underground by a nail in the cement stopper of a bottle. The top of the surface mark is slightly below the ground. The reference mark is a nail in the top of a 4-inch tile which is filled and surrounded with concrete. It is in the line from the station to the eastern one of the gables on the south side of the hotel and is 43.36 meters from the station in azimuth  $252^{\circ}$ , approximately. This reference mark is in a small plot of ground, about 10 by 40 feet, which separates the two parts of the roadway along the west side of the hotel, is about 60 paces south of the walk along the south side of the hotel and is 8 paces west of the line of the west gable of the hotel. The foundation of the concrete pier of *Bellevue longitude station* is 32 inches north of the station. (See below.)

#### SUPPLEMENTARY POINTS.

*Bellevue longitude station* (Hillsboro County, O. B. F., 1907; 1910).—Thirty-two inches directly north of *Bellevue* (see above). The station is marked by the foundation of the concrete pier, which is just below the surface of the ground.

*Clearwater latitude station* (Hillsboro County, E. S., 1873; 1906).—Lost.

#### GAINESVILLE TO CLEARWATER HARBOR.

##### PRINCIPAL POINTS.

*Odd Fellow* (Alachua County, H. G. O., 1897).—One-half mile east of the city of Gainesville on the line of the Florida Central & Peninsular Railroad. It is  $4\frac{1}{2}$  meters north of the range of the courthouse on the east or north gable of the Odd Fellows' Home and is 6 meters east of the east rail of the track. Marked by a bottle buried underneath a section of gas pipe in the form of an inverted T; the bottle and the lower end of the pipe are set in cement, and the upper end of the pipe projects about 6 inches above the ground.

*Colclough Hill* (Alachua County, H. G. O., 1898).—About  $1\frac{1}{4}$  miles south of the Florida Central & Peninsular Railroad on the land of Charles Colclough, on the east side of the road from Gainesville to Rocky Point. The station is some distance north of the top of the hill known as Colclough Hill and nearly in the prolongation of the first tangent of the railroad northeast of Gainesville. The station is marked by a 2-inch iron pipe which projects 8 inches above the ground, and underground by a bottle. A large live-oak tree with four nails in the side facing the station is 41.1 meters south  $81^{\circ} 15'$  west from the station.

*Murphy* (Alachua County, H. G. O., 1898).—On the north side of the Florida Central & Peninsular Railroad, about  $1\frac{1}{2}$  miles southwest of Gainesville. The station is near the intersection of two wagon roads, one of which crosses the railroad in that vicinity. It is across the track from and a short distance to the east of the house of W. W. Murphy and 9.5 meters north of the south rail of the railroad. The station is marked by a copper tack in the top of a pine stub at the center of a 6-inch tile and underground by a bottle.

*Day* (Alachua County, H. G. O., 1898).—At Dayville, on the Florida Central & Peninsular Railroad, about  $3\frac{1}{2}$  miles from Gainesville and very nearly in the prolongation of the south rail of the tangent from Sutherland. The station is on the property of Dutton & Robinson, of Gainesville, and 36.0 meters from the south rail of the track at a point of the curve abreast the station. It is closely on the intersection of the south rail tangent from Archer and the west rail of the short tangent just north of the station. The station is marked by a copper nail in a pine stub at the center of a 6-inch tile and underground by a bottle.



*Sutherland* (Alachua County, H. G. O., 1898).—At the end of the tangent of the Florida Central & Peninsular Railroad that extends north from Archer to Palmer and nearly in the prolongation of that tangent. The station is 135 meters from the point of curve at the end of the tangent, 347 meters from the station board north of Palmer, and near the wagon road from Archer to Gainesville. The station is the center of a 4-inch iron pipe.

*Dutton* (Alachua County, H. G. O., 1898).—On the prolongation of the tangent of the Florida Central & Peninsular Railroad from Palmer to Archer and 144.5 meters southwest of the railroad cut for Dutton switch, the measurement being made on the line from Archer. The station is the center of a 6-inch tile.

*Bronson* (Levy County, H. G. O., 1898).—Three hundred and three meters northeast of the northeast end of the railroad station at Bronson, 16.5 meters north of the south rail of the Florida Central & Peninsular Railroad at a point opposite a curve in the track and in the prolongation of the south rail of the tangent from Turn. The station is 13.8 meters from the southeast corner of J. F. Jackson's lot and 16.8 meters from the southwest corner of Mrs. L. U. Coulter's lot, which is across the street, and 8.1 meters east of the first-mentioned lot. The station is marked by a quarter-inch iron rod at the center of a 6-inch tile, which is filled and surrounded with concrete, and underground by an inverted bottle.

*Turn* (Levy County, H. G. O., 1898).—About  $2\frac{1}{2}$  miles southwest of Bronson, on the north side of the Florida Central & Peninsular Railroad, near a curve of the railroad and on the prolongation of the line of the south rail of the tangent from Bronson. The station is 166 meters west of milepost 125 and is marked by a quarter-inch iron rod in the center of a 6-inch tile which is filled with concrete.

*Waccasassa* (Levy County, H. G. O., 1898).—On a small island in the Waccasassa River, a short distance south of the Florida Central & Peninsular Railroad. The station is at the intersection of the tangent lines of the railroad from Rosewood through Otter Creek and from Turn (see above), and is 98.8 meters from the north rail of the track at a point very near the west end of the trestle over the Waccasassa River. The station is marked by the center of a 4-inch iron pipe which was driven into the ground and filled with concrete. Four blazed trees are at the following distances and magnetic azimuths from the station: Cypress, 20.7 meters,  $20^{\circ} 12'$ ; oak, 14.0 meters,  $140^{\circ} 00'$ ; oak, 19.5 meters,  $267^{\circ} 00'$ ; and sweet gum, 25.6 meters,  $322^{\circ} 30'$ . The first-mentioned oak and the sweet gum are on the island, the other oak is on the west bank of the river, and the cypress is on the east bank of the river.

*Rosewood* (Levy County, H. G. O., 1898).—About 1 mile southwest of the village of Rosewood and 10.717 meters north of the south rail of the Florida Central & Peninsular Railroad at a point a short distance west of a curve of the railroad. The station is nearly in the prolongation of the tangent of the railroad between Waccasassa River and Rosewood. It is marked by a quarter-inch iron rod in the center of a 6-inch tile which is filled and surrounded with concrete. The underground mark is a bottle.

*Oyster Cove* (Levy County, H. G. O., 1898; 1910).—On the mainland near the shore, about 3 miles from Cedar Keys, on the southeast side of the Florida Central & Peninsular Railroad, and near a road crossing. The station is 9.75 meters from a point on the south rail which is 35 meters northeast of the end of a curve of the railroad track and 118 meters southwest of a wood rack that stands beside the track. The station is marked by a quarter-inch iron rod at the center of a 6-inch tile which is filled and surrounded with concrete. The underground mark is a stone bottle 3 feet below the ground.

*Black Point 2* (Levy County, A. T. M., 1874; 1910).—On the mainland northwest of Way Key and near the end of what is known as Black Point. It is on land belonging to Mr. Demary, and when the station was established his house stood 100 meters northwest, but it has since been burned or demolished. The station is marked by a marble block 18 inches below the ground. No trace of the station was found in 1910.

*North Key* (Levy County, H. G. O., 1874; 1910).—On the northern extremity of North Key. The station is marked by a screw pile, and when visited in 1910 was about 6 meters out from the shore line and completely submerged at high tide. At that time an eccentric station was

established back on firm ground, 25.32 meters from the original station, in azimuth  $48^{\circ} 41'$ . The eccentric station is marked according to note 12,<sup>1</sup> except that the underground mark is an inverted bottle 26 inches below the surface. From the eccentric station it is 17 paces north to the high-water mark, 18 paces east to high-water mark, and 8 paces south to the edge of the marsh. The reference mark, described in note 13,<sup>1</sup> is 29.94 meters from the eccentric station and 53.30 meters from the original station, in azimuth  $65^{\circ} 22'$  from the latter.

*Pelican Shoal 2* (Levy County, A. T. M., 1874; 1897).—Lost.

*Lime Point 2* (Levy County, A. T. M., 1874, 1910).—On the extreme southeastern point of the island called Lime Point, on a narrow tongue of sand extending into the marsh to the eastward from the high shell bank that forms the main part of the island. The station is marked by a standard disk station mark in the top of a 6-inch tile which is filled with concrete and projects 3 inches above the ground. The underground mark is a bottle set in concrete  $2\frac{1}{2}$  feet below ground, 6 inches of sand separating it from the surface mark. A reference mark, a standard cap station mark screwed to the top of a 3-inch iron pipe, is 32.660 meters N.  $42^{\circ}$  W. from the station. Two palmetto trees, each marked with a triangular blaze with a nail at the center and each vertex, are, respectively, 29.071 meters N.  $63^{\circ}$  W. and 5.460 meters N.  $88^{\circ}$  W. from the station.

*Snake Key 2* (Levy County, A. T. M., 1874; 1910).—On the northwestern end of Snake Key on a high bank covered with palmettos, 7 meters from the north edge of the bank and 36 meters from the west edge. The station is marked according to note 12,<sup>1</sup> except that the underground mark is a bottle 30 inches below the ground. A reference mark, described in note 13,<sup>1</sup> is 13.415 meters from the station in azimuth  $56^{\circ} 10'$ . Two palmetto trees, marked with triangular blazes with a nail at the center and each vertex of the triangle are, respectively, 10.82 meters from the station in azimuth  $299^{\circ} 10'$  and 16.67 meters in azimuth  $90^{\circ} 21'$ .

*South Reef* (Levy County, A. T. M., 1874; 1910).—On the extreme southern oyster bank forming Oyster or Cowigans Reef. The bank is very small and is covered at extreme high tides. The station is marked by a screw pile which was found leaning slightly to the northward in 1910.

*Cottrell* (Levy County, A. T. M., 1874; 1910).—This station has been destroyed.

*North Reef* (Levy County, A. T. M., 1874; 1910).—This station has been destroyed.

*South Point 2* (Levy County, A. T. M., 1874; 1910).—This station has been destroyed.

*Way Key south base* (Levy County, F. H. G., 1851; 1910).—This station has been destroyed.

*Way Key north base* (Levy County, F. H. G., 1851; 1898).—On the narrow sand beach north of the railroad at the northeast end of the town of Cedar Keys. The station is marked by a screw pile. No trace of it could be found in 1898.

*Harbor Key 2* (Levy County, A. T. M., 1874; 1910).—Lost.

*Daughtry Island northeast base* (Levy County, F. W. P., 1877; 1910).—On high sandy ground near a bight at the northeastern end of Daughtry Island, about 200 paces from the eastern shore line of the island and 12.6 meters back of the edge of the marsh which borders the shore line of the bight. The station was marked originally by a marble block placed 3 feet underground. In 1910 a surface mark, a standard disk station mark in the top of a 6-inch tile filled with concrete, was placed above the block with 12 inches of sand separating the two marks. A reference mark, a standard cap station mark screwed to the top of a 3-inch iron pipe projecting 15 inches above the ground, is near the edge of the marsh 14.960 meters N.  $43^{\circ}$  E. from the station. Two blazed pines are at the following distances and azimuths from the station: 14.3 meters,  $282^{\circ}$ ; and 24.1 meters,  $6^{\circ}$ .

*Daughtry Island southwest base* (Levy County, F. W. P., 1877; 1910).—On high sandy ground near the western shore at about the middle of Daughtry Island and about 7 meters from the edge of the marsh that borders the shore. The station was marked originally by a marble block placed 3 feet below the ground. In 1910 a surface mark, a standard disk station mark in the top of a 6-inch tile filled with concrete, was placed above the block with 13 inches of sand

<sup>1</sup> See pp. 61-62.



separating the two marks. A reference mark, a standard cap station mark screwed to the top of a 3-inch iron pipe, which projects 20 inches above the ground, is on the edge of a hard strip of land between the brush and the marsh grass 9.612 meters N.  $83^{\circ}$  W. from the station. A pine tree having a triangular blaze with a nail at the center and each corner of the triangle is at the western edge of the brush, 8 paces from the edge of the marsh, 23.530 meters N.  $10^{\circ}$  W. from the station. A palmetto tree with a triangular blaze is 22.8 meters from the station in azimuth  $251^{\circ} 06'$ , and a pine tree stump 31.2 meters, in azimuth  $235^{\circ} 36'$ .

*Oyster Reef south 2* (Levy County, B. H., 1856; 1874).—Lost.

*Mainland* (Levy County, B. H., 1856).—On a point about 2 miles east of Cedar Keys, on a small hammock 20 paces east and west by 6 paces north and south covered with bushes. The station is marked by a copper tack in the top of a 3 by 4 inch stake. Similar stakes are near the station, one in line with each of the old tripod legs.

*Oyster Reef B3* (Levy County, B. H., 1856; 1874).—Lost.

*Oyster Reef C* (Levy County, B. H., 1856).—East of Cedar Keys on a small Oyster reef, the first one from the southward on which there are any mangrove bushes. The station is about 8 feet north of a small clump of bushes and just east of some mangroves that border a small creek or bayou. It is marked by a nail in the top of a piece of Bermuda stone which is sunk 6 inches below the surface.

*Depot Key* (Levy County, F. H. G., 1851; 1874).—About the center of Depot Key near the tall pine on the middle of the hill about one-fourth mile east of the settlement. The station is marked by a nail in the top of a large Bermuda stone. The west corner of a house is 15.9 meters distant and a small cabbage tree blazed and marked with copper nails is 16.2 meters in a northerly direction from the station. Four poles marked with copper nails are near the station.

*Waccasassa Reef* (Levy County, B. H., 1856; 1910).—Lost.

*Mainland East* (Levy County, B. H., 1856; 1910).—On a point of land about halfway between Cedar Keys and Waccasassa River, at the outer edge of the marsh grass on the south side of a bayou. The station is marked by a nail in a block of Bermuda stone which projects 4 inches above the surface and may be seen from the shore line when landing. Parts of the old tripod legs were found in position in 1910, and between each of these legs and the station and 4 feet from the station is a stake with a nail in the top. In 1910 a reference mark, a standard cap station mark screwed to the top of a 3-inch iron pipe, was set 17.375 meters N.  $27^{\circ}$  E. from the station.

*Grassy Point* (Levy County, B. H., 1856; 1910).—This station has been destroyed.

*Middle Marsh* (Levy County, G. H. B., 1857; 1910).—About 1 mile east of South Mangrove Point, on the eastern side of a bayou at a place where there is a bight in the bayou containing an island. The station is 6 meters from the shore of this bight and about 50 meters from the outer point of the marsh. The station is marked by a screw pile. In 1910 a reference mark, a standard cap station mark screwed to the top of a 3-inch iron pipe, was set 9.372 meters south  $21^{\circ}$  east from the station.

*Basin Rock* (Levy County, G. H. B., 1857; 1910).—On a prominent rock about 4 miles north of Withlacoochee River. The station is marked by a screw pile. There is a cup-shaped depression 6 or 8 feet wide in the rock just south of the station.

*Crane Island* (Levy County, G. H. B., 1857; 1910).—Lost.

*Sand Shoal 1* (Levy County, G. H. B., 1857; 1901).—This station has been destroyed.

*Marsh Island* (Citrus County, G. H. B., 1857; 1901).—This station has been destroyed.

*Half Moon Bar* (Citrus County, G. H. B., 1857; 1901).—This station has been destroyed.

*Little Island* (Citrus County, G. H. B., 1857; 1901).—This station has been destroyed.

*Crystal Reef* (Citrus County, G. H. B., 1857; 1910).—This station has been destroyed.

*Shell Point* (Citrus County, G. H. B., 1857; 1910).—At the outer edge of the trees at the point of a bold palmetto bluff on the western end of Shell Island about one-half mile south of the entrance to Crystal River. The station is marked by a screw pile which was found well preserved in 1910.

*Bear Island* (Citrus County, G. H. B., 1857; 1910).—On a high shell mound on the north side of Bear Island about 1 mile south of Mullet Key and near the mouth of Salt River. The station is marked by a screw pile which projects about 23 inches above the ground. In 1910 a reference mark, a standard cap station mark screwed to the top of a 3-inch iron pipe, was set 4.686 meters S.  $85^{\circ}$  W. from the station. Two palmetto trees, each marked with four nails in the form of a triangle with center nail, are, respectively, 10.278 meters N.  $32^{\circ}$  E., and 14.758 meters N.  $85^{\circ}$  E. from the station.

*Bird Key* (Citrus County, G. H. B., 1857; 1910).—On the western part of a low mangrove key, the northwest one of the Homosassa Islands. The key is about 25 meters wide by 60 meters long and the station is in the mangroves about 10 meters from the west shore of the key and about the same distance from the north shore. The station is marked by a screw pile which projects 19 inches above the ground. In 1910 a reference mark, a standard cap station mark screwed to the top of a 3-inch iron pipe, was set 23.401 meters S.  $78^{\circ} 30'$  E. from the station.

*Ragged Island* (Citrus County, G. H. B., 1858; 1910).—On a small island covered with low mangroves about 3 miles north of Homosassa River. The island is about 15 meters north and south by 20 meters east and west and has a hook-shaped spur on the northeast end. The station is about 6 meters from the north side of the island and is marked by a screw pile. In 1910 a reference mark, a standard cap station mark screwed to the top of a 3-inch iron pipe which projects 20 inches above the ground, was set 7.875 meters N.  $50^{\circ} 30'$  E. from the station.

*Homosassa Point* (Citrus County, G. H. B., 1858; 1910).—On the west point of the first key north of Homosassa Bay. The station is marked by a screw pile which projects 23 inches above the ground and may be seen from the water in approaching the station from the northwest. In 1910 a reference mark, a standard cap station mark screwed to the top of a 3-inch iron pipe, was set 27.305 meters N.  $79^{\circ} 30'$  E. from the station.

*Tuckers Island* (Citrus County, G. H. B., 1858; 1910).—This station has been destroyed.

*Chassahowitzka Point* (Citrus County, G. H. B., 1858; 1910).—On the west point of the northern part of the key known as Chassahowitzka Point. The station is near the edge of the marsh grass and is marked by a screw pile which projects 22 inches above the ground. In 1910 a reference mark, a standard cap station mark screwed to the top of a 3-inch iron pipe, was set 18.818 meters N.  $64^{\circ} 30'$  E. from the station.

*Rocky Ridge* (Citrus County, G. H. B., 1859; 1910).—On a rocky strip of marsh about 3 miles east of Chassahowitzka Point. The station is marked by a screw pile set in Bermuda rock and projecting 2 feet. In 1910 a reference mark, a standard cap station mark screwed to the top of a 3-inch iron pipe which projects 22 inches above the ground, was set 15.854 meters S.  $22^{\circ}$  W. from the station.

*Little Rock* (Hernando County, G. H. B., 1859; 1910).—Lost.

*Herrings Bluff* (Hernando County, G. H. B., 1859; 1910).—Near a high prominent palmetto bluff about 1 mile south of the Chassahowitzka River and 25 meters north of the north bank of a large bayou about 1 mile above its mouth. The station is marked by a screw pile set in the Bermuda rock. A reference mark, a standard cap station mark screwed to the top of a 3-inch iron pipe which projects 20 inches above the ground, is 18.818 meters N.  $64^{\circ} 30'$  E. from the station.

*Raccoon Point* (Hernando County, G. H. B., 1859; 1910).—On the northwest side of a prominent sandy point or island about 5 miles north of the village of Bayport. The station is in the water about 3 meters from shore at high tide and is about 300 meters N.  $30^{\circ}$  W. from the southern extremity of the island. A reference mark, a standard cap station mark screwed to the top of a 3-inch iron pipe which projects 15 inches above the ground, is 6.821 meters S.  $63^{\circ} 30'$  E. from the station. A triangular blaze on a palmetto tree with a nail at the center and each corner of the triangle is 22.041 meters N.  $36^{\circ} 30'$  E. from the station.

*New Reef* (Hernando County, G. H. B., 1859; 1910).—Lost.

*Beacon Rock* (Hernando County, G. H. B., 1859; 1910).—On a high prominent rock 6 feet east and west by 10 feet north and south about 4 miles west of the village of Bayport on the



north side of the channel. The station is under water at high tide. It was originally marked by a drill hole in the rock and in 1910 a standard disc station mark was cemented in this hole. The reference mark, a crowsfoot drilled in the rock, is 9 inches from the station.

*Bayport* (Hernando County, G. H. B., 1859; 1910).—This station has been destroyed.

*West Rock* (Hernando County, G. H. B., 1859; 1910).—About 4 miles south of Beacon Rock on the southeast end of a rock ledge which is about 10 feet east and west by 12 feet north and south. It is under water at high tide. The station was originally marked by a drill hole in the rock and a standard disc station mark was cemented in this hole in 1910.

*Long Key* (Hernando County, G. H. B., 1859; 1910).—On a narrow marshy key at Gun Point, just north of the mouth of Hammock Creek. It is at the western end of the key about 17 meters west of the edge of the marsh grass and in 1 foot of water at high tide. The station is marked by a screw pile, which in 1910 was found leaning to the north and projecting about  $2\frac{1}{2}$  feet above the ground, but in a good state of preservation. A reference mark, a 3-inch pipe with a standard cap station mark screwed to the top, was placed 31.660 meters S.  $83^{\circ} 30' E.$  from the station. The reference mark is in the marsh grass about 17 meters from the edge of the grass and projects 15 inches above the ground.

*Coral Rock* (Pasco County, G. H. B., 1860).—In the Gulf about 3 miles west of Cedar Point in about 3 feet of water at low tide. Marking unknown.

*Southeast Point* (Pasco County, G. H. B., 1860; 1910).—On a prominent point about  $2\frac{1}{4}$  miles south of Cedar Point. This station has been destroyed. A new mark was placed near the location of the old station in 1910, but its position was not determined by triangulation. The new mark consists of a standard disc station mark in the top of a 6-inch tile which is filled with concrete, and underground, of a quarter-inch brass bolt in the top of a block of concrete.

*Pelican Point* (Pasco County, G. H. B., 1860; 1910).—This station has been destroyed, as the screw pile with which the station was originally marked was found lying on top of the ground in 1910. At that time a 3-inch iron pipe with a standard cap station mark screwed to the top was set about 20 feet north of a small creek, near the position of the old station, but the position of this new mark was not determined by triangulation.

*Deer Island* (Pasco County, G. H. B., 1860; 1910).—This station has been destroyed.

*North Anclote* (Pasco County, G. H. B., 1860; 1906).—This station has been destroyed.

*Tiger Point* (Pasco County, G. H. B., 1861; 1906).—On the level grassy point just north of the mouth of the Anclote River, 30 meters from the shore line to the south and 10 meters from the shore line to the west. The station is marked by a screw pile. It could not be recovered in 1906.

*South Anclote* (Pasco County, G. H. B., 1860; 1906).—On the east side of the south end of the largest one of the Anclote Keys. The station is marked by a screw pile. No trace of it could be found in 1906.

*Piney Point* (Hillsboro County, G. H. B., 1860; 1906).—On a high sandy wooded point about 1 mile south of the mouth of Anclote River. The station is marked by a screw pile. No trace of it could be found in 1906.

*Hog Island north* (Hillsboro County, G. H. B., 1861).—On the eastern part of the north end of Hog Island. The station is marked by a screw pile.

*Indian Bluff* (Hillsboro County, G. H. B., 1861; 1906).—On the north end of a prominent round point on the mainland shore of St. Josephs Sound. The station is marked by a screw pile. No trace of it could be found in 1906.

*Bayonet Point* (Hillsboro County, G. H. B., 1861; 1906).—On the west side of a small island in the eastern part of St. Josephs Sound. The station is marked by a screw pile. No trace of it could be found in 1906.

*St. Joseph Flat* (Hillsboro County, G. H. B., 1861; 1906).—On a point on the east coast of Hog Island. The station is marked by three copper nails in the form of a triangle in the top of a cedar post. No trace of the station could be found in 1906.

*Orange Grove* (Hillsboro County, G. H. B., 1861; 1906).—This station has been destroyed.

*Elbow Key* (Hillsboro County, G. H. B., 1861).—On the northeastern end of Elbow Key. The station is probably marked by a cedar post.

*Long Reach* (Hillsboro County, G. H. B., 1861; 1906).—This station has been destroyed.

*Blind Key* (Hillsboro County, G. H. B., 1861; 1906).—On the northeastern part of Blind Key. The station is marked by a copper nail in a pine stub surrounded by pieces of iron pipe. No trace of the station could be found in 1906.

*Cormorant Rock* (Levy County, G. H. B., 1857; 1910).—On a rock reef which is covered at high tide about 3 miles southeast of the mouth of Waccasassa River. The station is marked by a screw pile which was found bent toward the south in 1910. A reference mark, a standard cap station mark screwed to the top of a 3-inch iron pipe, is 4.402 meters S. 59° W. from the station.

*Turtle Creek* (Levy County, G. H. B. 1857; 1910).—About 3 miles south of Waccasassa River on the eastern bank of a bayou about 200 meters north of the junction of the bayou with Turtle Creek. The station is marked by a cross on the top of a 5 by 5 inch granite block which projects 4 inches above the ground, and underground by an iron cone.

*Harbor Key 3* (Levy County, G. H. R., 1910).—On a narrow sand ridge on the northeast side of a small key called Grassy Key about 1 mile south of the town of Cedar Keys. Except for the sand ridge the key is low and grassy. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 15.65 meters from the station in azimuth 61° 17'.

*South Point 3* (Levy County, G. H. R., 1910).—On a sand ridge 3 or 4 feet high and 10 meters wide which extends along the south and southwest end of the point at the southern extremity of Way Key about 1 mile southwest of the town of Cedar Keys. The station is at the north edge of the small brush that covers the point. From the station it is 25 paces south to high-water mark, 14 paces north to the edge of the hard marsh, 45 paces S. 70° W. to the point of the sand ridge where the beach turns to the northward and 154 paces N. 70° E. to the eastern end of the sand ridge. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 15.361 meters from the station in azimuth 169° 41'.

*Key North* (Levy County, G. H. R., 1910).—On a sand bank 4 feet above high water on the southern extremity of North Key 14 paces from high-water mark to the south and 20 paces from the edge of the marsh to the north. There are several palmettos and a few live oak trees on the point and a large pond about 70 meters back of the station. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 21.89 meters from the station in azimuth 155° 09'. Two palmetto trees, marked with triangular blazes with a nail at each vertex, are, respectively, 18.14 meters from the station in azimuth 280° 04' and 12.01 meters in azimuth 135° 07'.

*Sand* (Levy County, H. L. M., 1901).—On the southern point of a broken shell reef on the northern edge of the channel at the entrance to the Withlacoochee River and about 1½ miles west of Chambers Island. The station is marked by an iron pipe which projects about 2 feet above the shell.

*Hunt* (Levy County, H. L. M., 1901).—On the southwestern end of Chambers Island near a house occupied by Mr. Hunt. The station is marked by a 3-inch iron pipe which projects 10 inches above the ground. The southwest corner post of Hunt's house marked by 3 nails is 7.41 meters north of the station and the southeast corner post similarly marked is 14.9 meters northeast of the station. *South Base* (U. S. E.) (see p. 94) is 48.23 meters from the station in azimuth 14° 01'.

*Half Moon* (Citrus County, H. L. M., 1901).—On a small shell reef, one of a long chain of reefs known locally as Half Moon Bar. The station is covered at high tide. It is marked by a 3-inch iron pipe set in cement, the pipe projecting 18 inches above the reef.

*Little Pass* (Hillsboro County, G. H. R., 1910).—On the sand spit extending northwest and southeast which forms the southern end of the large island between Little Pass and Big Pass on the western side of Clearwater Harbor. High-water mark is at the following distances from the station: Southeastern extremity of spit, 90 paces; southwest shore, 60 paces; and northeast shore, 40 paces. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 31.765 meters from the station in azimuth 103° 51'.



*Stevens* (Hillsboro County, G. H. R., 1910).—On a prominent point just south of the mouth of Stevens Creek,  $1\frac{1}{4}$  miles north of the town of Clearwater. The station is 8 meters from the edge of the bank and 11 meters from high water mark at a point 60 meters south of where the shore line turns sharply to the eastward. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 26.097 meters from the station in azimuth  $262^{\circ} 54'$ . Two large pine trees, marked with triangular blazes with nails driven in the vertices, are, respectively, 25.96 meters from the station in azimuth  $289^{\circ} 18'$  and 20.36 meters in azimuth  $30^{\circ} 43'$ .

*Big Pass* (Hillsboro County, G. H. R., 1910).—On the southern extremity of Hog Island just north of the inner end of Big Pass and about 300 meters west of a small island. The station is at the eastern edge of an open sandy space at the edge of the thick hedge of mangroves which borders the shore and is 21 meters from high-water mark to the east and about 120 meters from high-water mark to the south. Several palmetto trees are about 200 meters west of the station. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 28.88 meters from the station in azimuth  $99^{\circ} 47'$ . A palmetto tree, marked with a triangular blaze with a nail at each vertex, is 56.84 meters from the station in azimuth  $47^{\circ} 12'$ .

*Curlew* (Hillsboro County, G. H. R., 1910).—On an island three-eighths of a mile northeast of the mouth of Curlew Creek and  $2\frac{1}{4}$  miles north of the town of Dunedin. There are a few scattering pines on the island and the ground is about 3 feet above high-water mark. The station is 25 paces from the edge of the bank to the west, 34 paces from the edge of the bank to the southwest, and 135 paces from high-water mark at the southwestern extremity of the island. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 15.327 meters from the station in azimuth  $256^{\circ} 46'$ . Two pines marked with triangular blazes with a nail at each vertex, are, respectively, 38.16 meters from the station in azimuth  $298^{\circ} 48'$  and 32.74 meters in azimuth  $324^{\circ} 41'$ .

*Mud* (Hillsboro County, G. H. R., 1910).—About 2 miles northwest of the town of Dunedin on a prominent point on the eastern shore of Hog Island about 2 miles from the southern extremity of the island. The point forms the northeast side of a small bay in which are several small islands and is covered with mangroves to within 12 meters of the station. At low tide a long mud flat extends out from the end of the point. The station is 12 meters from the southern extremity of the point and is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 6 meters back from the edge of the mangroves and 17.64 meters from the station in azimuth  $107^{\circ} 40'$ .

*Seaside* (Hillsboro County, G. H. R., 1910).—On the most western point of a peninsula three-fourths of a mile south of the town of Seaside and directly east of the northern end of Hog Island, 12 paces from the edge of the bank along the shore. The ground is about 3 feet above high water and there are a few scattering pine trees near the station. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 18.694 meters from the station in azimuth  $274^{\circ} 31'$ . Two pine trees, marked with triangular blazes with a nail at each vertex, are respectively 9.94 meters from the station in azimuth  $244^{\circ} 03'$  and 19.80 meters in azimuth  $293^{\circ} 21'$ .

*North Hog Island* (Hillsboro County, G. H. R., 1910).—On the narrow peninsula covered with mangroves at the northeastern extremity of Hog Island, 8 meters from high-water mark to the east, 20 meters from high-water mark to the west, and 60 meters north of the southern end of the peninsula. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 9.142 meters from the station in azimuth  $91^{\circ} 17'$ .

*Palmetto Key* (Hillsboro County, G. H. R., 1910).—On the western side of Palmetto Key about one-half mile south of the entrance to Anclote River and almost directly east of the Anclote River lighthouse. High-water mark is at the following distances from the station: 30 paces south, 40 paces west, and 70 paces north. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 17.764 meters from the station in azimuth  $295^{\circ} 44'$ .

*North Anclote 2* (Hillsboro County, G. H. R., 1910).—On the eastern end of the most northerly of the North Anclote group of islands. High-water mark is at the following distances

<sup>1</sup> See pp. 61-62.



from the station: 17 paces east, 9 paces south, and 14 paces north. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 20.092 meters from the station in azimuth 108° 35'.

*Baileys Bluff* (Hillsboro County, G. H. R., 1910).—Near the southwestern edge of a point known as Baileys Bluff about 2 miles north of the mouth of the Anclote River. The station is on a bank 8 feet above high water about 30 meters southeast of a barn and from 100 to 200 meters south of some houses. It is 10 paces from high-water mark to the west and 25 paces from high-water mark to the south, and is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 11.44 meters from the station in azimuth 247° 37'. A palmetto tree, marked with a triangular blaze with a nail at each vertex, is 19.44 meters from the station in azimuth 196° 50'.

#### SUPPLEMENTARY POINTS.

*Depot Key azimuth station* (Levy County, A. T. M., 1874).—This station is 13.53 meters north and 14.33 meters west of *Depot Key* (see p. 89). Marking not stated.

*South base (U. S. E.)* (Levy County, H. L. M., 1901).—This station is 48.23 meters from *Hunt* (see p. 92) in azimuth 14° 01'. Marking not stated.

*Windmill* (Levy County, H. L. M., 1901).—The top of the tripod of the iron windmill frame on Chambers Island on the north side of the bungalow belonging to Captain Inglis.

*Inglis flagstaff* (Levy County, H. L. M., 1901).—The high flagstaff on Chambers Island in front of the bungalow belonging to Capt. Inglis.

#### CEDAR KEYS TO ST. MARKS RIVER.

##### PRINCIPAL POINTS.

*Number 6* (Levy County, F. W. P., 1877).—In about 1 foot of water at low tide near what is known as No. 4 channel. The station is marked by a copper tack in the top of a stake.

*Reef* (Levy County, F. W. P., 1876).—On the northeast edge of an oyster reef, just opposite the east mouth of the Suwanee River. The reef is generally partly dry or just awash at high tide, and about 100 meters north of the station there is a deep passage through the reef. The station is marked by a marble block 4 inches below the surface.

*Cabbage* (Levy County, F. W. P., 1876).—On Cabbage Island in the southern part of Suwanee Sound, on hard sand near the southern end of the island about 25 meters from the edge of the marsh to the south and about 15 meters from the edge of the marsh to the west. The station is marked by a marble block 1½ feet below the surface.

*Mallard* (Levy County, F. W. P., 1876).—On the western edge of a small marshy island near the western or principal mouth of the Suwanee River. The ground near the station is soft and overflows at high tide. The station is marked by a marble block 8 inches below the surface of the ground.

*River* (Levy County, F. W. P., 1876).—On the eastern extremity of a hard sandy point just south of the mouth of the East Pass to the Suwanee River. The station is marked by a marble block 8 inches below the surface of the ground.

*Ready* (La Fayette County, F. W. P., 1876).—At the southeast end of Horseshoe Cove near the mouth of California Creek, on a small marshy island which has a high sandy ridge a few feet wide along the northern side. The station is 30 meters from the grass line to the south and 10 meters from the grass line to the north. It is marked by a marble block 16 inches below the surface of the ground. The east point of the island is 63 meters east by south from the station, and a tree is 37.0 meters west by south.

*Bird* (La Fayette County, F. W. P., 1876).—On the highest point of Bird Island, a small island about three-fourths of a mile south of the mainland at Horseshoe Point. The southern part of the island is high, shelly ground of great fertility and was once a roosting place for birds. The station is marked by an earthen jar 30 inches below the ground. A peck of bituminous coal

<sup>1</sup> See pp. 61-62.



was mixed with the earth placed above the jar. The following reference marks are near the station: Cedar stump, 14.5 meters southwest; blazed live oak, 35.6 meters northwest; blazed cedar, 30.7 meters directly north; and a blazed palmetto, 9.6 meters northeast of the station.

*Scaffold* (La Fayette County, F. W. P., 1874; 1876).—Near the southwest end of a prominent rocky point about 1 mile southeast of the mouth of Little Boggy Creek. The soil around the station is sandy and is covered with stub grass. The station is marked by two earthen crocks, one 2 feet below the ground and the other one-half foot below the ground.

*Horseshoe Point west base* (La Fayette County, F. W. P., 1876).—On a piece of hard land surrounded by marsh about 2 miles north of Horseshoe Point. There is a small creek on the east side of the station and another on the west side. A small boat can ascend the western creek at high tide to within two or three hundred meters of the station. The station is marked by a cross in the top of a marble block which is 5 inches square and 16 inches below the surface of the ground. Three blazed pine trees are at the following distances from the station: 19.6 meters west; 18.5 meters west; and 9.8 meters northeast.

*Horseshoe Point east base* (La Fayette County, F. W. P., 1876).—On soft marsh 30 meters from the shore line, about 600 or 700 meters from the shore at Horseshoe Point, and a short distance west of a small bayou. The station is marked by a marble block 18 inches below the ground above which is a small mound of earth. A drain was dug around the station and on both sides of the base line.

*Bowlegs' Point* (La Fayette County, F. W. P., 1874; 1876).—On the highest part of Pine Point, near the southwest extremity of the point. The soil around the station is firm, sandy soil and is covered with palmetto shrubs. The marking of the station is not stated. A spike driven in an oak tree is 14.5 meters from the station and a scantling driven in the ground with a row of tacks in the top is 3 feet from the station, both in azimuth  $243^{\circ}$ .

*Fog Island azimuth station* (La Fayette County, F. W. P., 1874).—Near the western end of Fog Island, a small island near the entrance to a small creek about 6 miles north of Pine Point. The station is marked by a cedar block 14 inches square and 6 feet long projecting 3 feet 3 inches above the ground. The lower end of the cedar block is in a hole in the solid rock 16 inches square and 14 inches deep, in the center of which a spike was driven for the underground mark.

*Steinhatchee* (Taylor County, F. W. P., 1874).—On a small piece of firm, grassy land surrounded by marsh on a point just north of the extreme outer entrance to the Steinhatchee River. The station is marked by a stone block which projects 3 inches above the ground. Three stubs surround the station each 2.5 feet distant. A large boiler from a wreck is about  $1\frac{1}{4}$  miles from the station in azimuth  $49^{\circ} 33'$ , and a house at the edge of the woods is in azimuth  $179^{\circ} 18'$ .

*Lamp* (La Fayette County, F. W. P., 1874).—Near the north end of a small island which forms a prominent point of land between the Steinhatchee River and Fog Island. The point at the north end of the island is rocky and slopes gradually into the water. The station is marked by an earthen crock, the top of which is level with the surface of the ground.

*Snipe* (Taylor County, F. W. P., 1874).—Near the outer end of a very prominent point about midway between the Steinhatchee River and Point Edwards. The station is 26 meters from high-water mark to the westward, and is marked by a screw pile sunk in a rock, the top of the pile being level with the surface of the ground. Three stubs were driven near the station and a pile of rocks made over the station and surrounded by a ditch.

*Point Edwards* (Taylor County, F. W. P., 1874).—Near the southeast extremity of Point Edwards on dry sandy ground which is covered with scrubby brush and a few palmettos. The station is marked by a granite block surrounded by three stubs. Three cedar stumps each marked with a spike are at the following distances and magnetic bearings from the station: 14.6 meters N.  $48^{\circ}$  W., 19.6 meters N.  $38^{\circ} 30'$  W., and 20.3 meters N.  $35^{\circ} 45'$  E.

*Piney Point* (Taylor County, F. W. P., 1874).—Near the southwestern extremity of Piney Point 23.5 meters from the water line and 8 meters back of the edge of the grass. The soil about the station is firm and is covered with grass and a few scattered clumps of bushes. The station is marked by a screw pile  $2\frac{1}{2}$  feet long, the top of which is 2 inches below the surface of the ground.



Four pine trees each marked with a triangular blaze with an iron spike at the center of the triangle are at the following distances from the station: 109.1 meters north, 105.5 meters northeast, 119.5 meters east, and 106.1 meters east.

*Live Oak Point* (Taylor County, F. W. P., 1874).—Near the western extremity of Live Oak Point on a sandy hummock on which there is a scanty growth of coarse grass and nine live oak and eight palmetto trees. The hummock is about 90 meters in diameter and the station is located near the shore line about halfway from the north edge to the south edge of the hummock. The station is marked by a granite block a few inches below the surface of the ground. Four trees, each marked with a triangular blaze with a spike at the center, are at the following distances from the station: Live oak, 18.3 meters southeast; live oak, 5.5 meters northeast; live oak, 25.6 meters northeast; and a palmetto, 9.1 meters north by west.

*Clearwater Creek* (Taylor County, F. W. P., 1873; 1874).—Near the southern end of a small grassy island at the mouth of Clearwater Creek. The station is marked by a short screw pile, the top of which is level with the general surface of the ground. A triangular pile of earth and rocks is above the station. The following measurements were taken from the station to the shore line: N.  $83^{\circ}$  W., 7 meters; S.  $16^{\circ}$  W., 23 meters; and S.  $41^{\circ}$  E., 16 meters.

*Soft* (Taylor County, F. W. P., 1873; 1874).—Near the southern end of a marshy point about  $1\frac{1}{4}$  miles northwest of the mouth of Warrior River. The station is marked by a stone block, the top of which is level with the general surface of the ground. A triangular mound of earth surrounded by a trench of the same shape is over the station. The following measurements were made from the station to the shore line: S.  $8^{\circ}$  E., 16 meters, and west, 14 meters.

*Solid* (Taylor County, F. W. P., 1873).—On a marshy point about  $1\frac{1}{2}$  miles southeast of the mouth of Fenholloway River. The station is marked by a spike driven in the limestone bottom  $3\frac{1}{2}$  feet below the ground with an earthen jar inverted over the spike. A triangular mound of earth surrounded by a trench of the same shape is over the station. The following measurements were made from the station to the shore line: N.  $63^{\circ}$  W., 19 meters; S.  $9^{\circ}$  W., 27 meters; and N.  $67^{\circ}$  E., 15 meters.

*Hard* (Taylor County, F. W. P., 1873).—On a point of the mainland nearly north of Rock Island. The end of the point is divided into two parts by a small bight and the station is on the western one of these parts. The station is marked by a spike driven in the solid limestone bottom 1 foot below the surface of the ground, with a stone pot inverted over the spike. A triangular mound of earth surrounded by a trench of the same shape is over the station. A spike in the rock is 13.34 meters S.  $53^{\circ} 00'$  W. from the station and the shore line at the end of the point is 20 meters south of the station.

*Rock Island* (Taylor County, F. W. P., 1873; 1874).—On the southwest side of Rock Island. The station is marked by a spike driven in the solid limestone bottom surrounded by a triangle cut in the rock with a stone pot inverted over the spike. A circular mound of earth surrounded by a circular trench 8 feet in diameter is over the station. Three spikes in the rock near the water's edge are at the following distances and magnetic bearings from the station: 24.11 meters, N.  $61^{\circ} 10'$  W.; 26.70 meters, S.  $84^{\circ} 20'$  W.; and 35.36 meters, S.  $41^{\circ} 50'$  W.

*False* (Taylor County, F. W. P., 1873).—On a small marshy point between two small creeks about 3 miles southeast of the mouth of the Econfenee River. The station is marked by a short screw pile, the top of which is level with the surface of the ground. A triangular mound of earth surrounded by a trench of the same shape is over the station. The nearest point of the shore line is 13 meters southwest of the station.

*Econfenee* (Taylor County, F. W. P., 1873).—On the end of the prominent marshy point just west of the mouth of the Econfenee River. The station is marked by an iron screw pile, the top of which is 4 inches below the ground. A circular mound of earth surrounded by a circular trench 8 feet in diameter is over the station. The shore line at the end of the point south by east from the station is 6.5 meters distant and the shore line to the northeast of the station is 9.5 meters distant.

*Topog* (Taylor County, F. W. P., 1873).—On the western end of a small marshy island about  $1\frac{1}{4}$  miles southeast of the mouth of the Aucilla River. The station is marked by a short



iron screw pile, the top of which is level with the surface of the ground. A circular earthen mound surrounded by a circular trench 8 feet in diameter is over the station. The following measurements were made from the station to the shore line: south by east, 12 meters; southwest, 18 meters; and northwest, 14 meters.

*Ocilla River* (Taylor County, S. C. M., 1859; 1873).—Near the southwest end of the point of marsh just south of the mouth of the Aucilla River. The station is marked by a granite block. In 1873 a circular mound of earth surrounded by a circular trench 8 feet in diameter was placed over the station. It is 31 meters to the shore line at the end of the point south by west from the station, and 15 meters to the shore line west of the station.

*Oyster Bar* (Jefferson County, F. W. P., 1873; 1910).—On the southeast end of an oyster bar about  $1\frac{1}{2}$  miles southwest of the mouth of the Aucilla River. The station is marked by a granite block, the top of which is level with the surface of the bar. A mound of shells was placed over the station when established and the instrument stubs left in place. The station was searched for without success in 1910.

*Marsh* (Jefferson County, F. W. P., 1873; 1910).—This station is marked by a granite block. It was searched for without success in 1910. The shore line in this vicinity has changed and the station, if not lost, can be located only by triangulation.

*Coral* (Jefferson County, F. W. P., 1873; 1910).—On one of the central rocks of the group known as Cobb Rocks, in Apalachee Bay, about 3 miles west of the mouth of the Aucilla River. The station is marked by a standard disk station mark, set in concrete in a hole in the rock and surrounded by a circle of rocks 6 feet in diameter. The station is covered by water except at low tide.

*Torrey* (Jefferson County, S. C. M., 1859; 1910).—About 5 miles west of the mouth of the Aucilla River and 200 meters from the shore of Apalachee Bay, on the south side of a small palmetto hummock and near a small winding bayou on which is a fisherman's landing. The station is marked by a standard disk station mark in the top of a block of concrete which projects 6 inches above the ground. The underground mark is a standard disk station mark set in cement in a hole in the solid rock 2 feet below the surface. A reference mark, a block of concrete built in the shell of a root of a palmetto tree with a bottle at the center and an inscribed arrow pointing to the station, is 5.37 meters distant in a direction  $62^{\circ} 50'$  to the right of St. Marks Lighthouse.

*Grey Mares* (Wakulla County, S. C. M., 1859; 1910).—On the largest of the Grey Mares Rocks in Apalachee Bay, about 5 miles east of St. Marks Lighthouse. The station is about 5 feet from the south edge of the rock, 6 feet 5 inches from the west edge, and 3 feet from the north edge, and is marked by a drill hole in the solid rock 1 foot 6 inches deep and 6 inches in diameter, surrounded by four iron spikes in the form of a square.

*Palmetto Island* (Wakulla County, S. C. M., 1859; 1910).—Lost.

*Denham* (Wakulla County, S. C. M., 1859).—About 2 miles inland on the marsh near the northeast side of a deep cove in the woods and about 1 mile east of Stony Bayou. The station is marked by a nail in the top of a live-oak stake. Four stakes are each 3 feet 7 inches from the station, and a mound of earth is over the station. A lone palmetto tree is 24.4 meters N.  $10^{\circ}$  E. and a corner stake marked 28 is 100 meters S.  $10^{\circ}$  W. from the station.

*New East River* (Wakulla County, S. C. M., 1859; 1910).—This station is marked by a stone block. It was searched for without success in 1910, and if it still exists it can be located only by triangulation.

*St. Marks L. H.* (Wakulla County, S. C. M., 1859; 1910).—The lighthouse at the entrance to St. Marks River, rebuilt in 1867, apparently on the same site.

*Port Leon* (Wakulla County, S. C. M., 1855; 1910).—On firm ground among scattering pine trees one-fourth of a mile from the St. Marks River at a point three-eighths of a mile below where the old railway grade touches the river. The station is marked by a standard disk station mark in a block of concrete built around and above the top of a stone block which is about  $4\frac{1}{2}$  inches square. Two other stone blocks, each with a drill hole in the top and sur-



rounded by a square block of concrete, are in line with the station and 2 feet distant, one to the northwest and the other to the southeast. An old stone foundation is across a pond from the station in azimuth  $352^{\circ} 17'$  and a palmetto near a stone pile east of the stone foundation is in azimuth  $330^{\circ} 43'$ .

*West Bayou Point* (Wakulla County, S. C. M., 1855; 1907).—Lost.

*Walker* (Wakulla County, S. C. M., 1855; 1910).—This station is marked by stone blocks. It was searched for without success in 1910 and if it still exists it can be located only by triangulation.

*St. Marks south base* (Wakulla County, S. C. M., 1855; 1910).—About 1 mile north of Old Port Leon, in the center of the grade of the St. Marks & Port Leon R. R. The station is marked by a standard disk station mark in a block of concrete 1 foot square 6 inches below the surface, and underground by a bottle  $2\frac{1}{2}$  feet below the surface. A reference mark, a bottle in a round block of concrete which projects 6 inches above the ground, is on the east side of the railroad grade 6.62 meters from the station in azimuth  $348^{\circ} 51'$ . Station *Aux* (see p. 99) is 49.06 meters distant in azimuth  $161^{\circ} 00'$ .

*Fort St. Marks* (Wakulla County, S. C. M., 1855; 1910).—At a distance of 8.30 meters from *Fort St. Marks astronomic station* (see p. 99) in azimuth  $98^{\circ} 50'$ . The station is marked by a square block of coral with two similar but smaller blocks 0.60 meters west and 0.53 meter south, respectively.

*St. Marks north base* (Wakulla County, S. C. M., 1855; 1910).—In the center of the grade of the St. Marks & Port Leon R. R. 105 meters south of the south bank of the St. Marks River. The station is marked by a standard disk station mark in a block of concrete 1 foot square 6 inches below the surface, and underground by a bottle 22 inches below the surface. Two rough granite blocks are in line with the station, one to the north 6 inches below the surface and 0.70 meters distant and the other to the south 2 inches below the surface and 0.67 meters distant. A reference mark, a bottle in a round block of concrete which projects 6 inches above the ground and is inscribed "Ref. 1910 for N. B. 1855," is on the east side of the grade, about 20 paces from the bank of the St. Marks River and 97.93 meters from the station in azimuth  $159^{\circ} 36'$ . *St. Marks magnetic azimuth station* (see p. 99) is 140.28 meters from the station in azimuth  $340^{\circ} 15'$ .

*Trot* (La Fayette County, F. W. P., 1874; 1876).—Near the eastern end of the eastern one of the Pepperfish Keys, a small island 95 meters long by 10 meters wide. The soil around the station is firm and is covered with short grass and small shrubs. The station is marked by a spike in the top of a piece of scantling driven in the center of an earthen crock. The top edge of the crock is level with the surface of the ground.

*Gibbs* (Wakulla County, W. H. B., 1907).—About 1 mile west of St. Marks River and about 250 meters north of Gibbs Point, near the east side of a small hummock 15 meters in diameter, the most southeastern one of several hummocks about 100 meters east of the hard land. The station is best approached by going up Little West Bayou about as far as possible in a small boat and from there the station is across the marsh to the westward. It is marked by a piece of 4-inch tile projecting 3 inches above the surface and underground by a black bottle 2 feet below the surface.

*Four Mile* (Wakulla County, W. H. B., 1907).—About 1 mile east of Four Mile Point and 200 meters south of a large "cabbage" hummock, in small bushes near the center of a small hummock about 10 meters in diameter, the eastern one of the two most southern hummocks in the group. The station is marked by two pieces of 4-inch tile, one piece projecting 3 inches above the surface and the other piece 18 inches below the surface.

*Leon* (Wakulla County, W. H. B., 1907; 1910).—On an embankment parallel to the shore line at Old Port Leon, 50.2 meters south of the intersection of the center line of this embankment with the center line of the railway embankment. The station is marked by a standard disk station mark in a block of concrete built around and above a piece of 4-inch tile. The underground mark is a piece of 4-inch tile 25 inches below the surface.

*Pan* (Wakulla County, W. H. B., 1907; 1910).—On the west bank of the St. Marks River, on the east end of the second point of trees south of the confluence of the St. Marks and the



Wakulla Rivers, the first prominent point of trees north of Gibbs Point. Fort St. Marks is just visible past the point of trees east of the confluence of the rivers. An old roadway leads to the southeast across the marsh to the river and the station is just southwest of where this road enters the marsh and about 150 meters southwest of the most easterly palmetto hummock in the vicinity. The station is marked by a standard disk station mark in a concrete block built around and above a piece of 4-inch tile and underground by a piece of 4-inch tile 20 inches below the surface. A reference mark, a bottle in a round block of concrete which projects 6 inches above the surface, is 8.71 meters from the station in azimuth  $70^{\circ} 38'$ . Three trees, each marked with a triangular blaze with a spike at the center of the blaze, are at the following distances and azimuths from the station: Palmetto, 11.95 meters,  $14^{\circ} 15'$ ; oak, 25.16 meters,  $27^{\circ} 51'$ ; oak, 5.39 meters,  $136^{\circ} 37'$ .

*Fort St. Marks astronomic station* (Wakulla County, W. H. B., 1907; 1910).—Just south of old Fort St. Marks and just east of the highest part of the open grassy plot on the point at the confluence of the St. Marks and Wakulla Rivers, 5 paces from high-water mark to the southeast, 11 paces from high-water mark to the west, and 11 paces south of where the road grade from the fort enters the grassy plot. The station is marked by a standard disk station mark in a block of concrete which is built around and above a piece of 4-inch tile. The underground mark is a piece of 4-inch tile 2 feet below the surface. Four cedar trees, each marked with from one to four nails, are at the following distances from the station: 10.58 meters east, 13.33 meters southwest, 11.36 meters northwest, and 20.86 meters north.

*Stack* (Wakulla County, W. H. B., 1907; 1910).—The center of the tall iron smokestack of the ruined mill of the Coast Cypress Lumber Co. in the village of St. Marks.

*Long* (Wakulla County, W. H. B., 1907; 1910).—In the village of St. Marks, on property belonging to Mellen Bros., 23.68 meters southeast of the southeast corner post of the lot of William H. Harrall and 84.66 meters from the east rail of the railway, measured along the line passing just to the north of Jackson's shanty. The station is marked by a 4-inch tile with top 2 inches below the surface. *St. Marks longitude station* is 0.87 meter south and 0.04 meter west of the station.

#### SUPPLEMENTARY POINTS.

*Tank* (Wakulla County, W. H. B., 1907; 1910).—Lost.

*Aux* (Wakulla County, W. H. B., 1907; 1910).—In the center of the roadbed of the St. Marks & Port Leon Railroad, 49.06 meters from *St. Marks south base* (see p. 98) in azimuth  $161^{\circ} 00'$ . The station is marked by a standard disk station mark set in a block of concrete which is built around and above the top of a 4-inch tile and which projects 6 inches above the ground.

*St. Marks magnetic azimuth station* (Wakulla County, W. H. B., 1907; 1910).—In the center of the roadbed of the St. Marks & Port Leon Railroad and 140.28 meters from *St. Marks north base* (see p. 98) in azimuth from the latter  $340^{\circ} 15'$ . The station is marked by a standard disk station mark in a block of concrete built around and above a piece of a 4-inch tile and underground by a piece of 4-inch tile 2 feet below the surface.

#### ST. MARKS RIVER TO ST. ANDREWS SOUND.

#### PRINCIPAL POINTS.

*Shell Point* (Wakulla County, S. C. M., 1859; 1910).—This station is marked by a stone block. Four oak stakes are north, south, east, and west from the station, each distant 3 feet. The station was searched for without success in 1910, and if it still exists it can be located only by triangulation.

*Bald Point* (Franklin County, S. C. M., 1859; 1910).—Lost.

*Porters Island* (Wakulla County, S. C. M., 1859; 1910).—Lost.

*Piccoline Bayou* (Wakulla County, S. C. M., 1859; 1910).—This station has been destroyed.

*Chaires* (Franklin County, S. C. M., 1859; 1910).—On the middle point of the south side of Ocklockonee Bay, about 12 meters from ordinary high-water and 6 meters from storm-water mark and about 12 meters in front of the scrub palmetto and oak which cover the point. The station is marked by a standard disk station mark in a round block of concrete built above the top of a granite post 4 inches square and 2 feet long. One reference mark, described in note 7,<sup>1</sup> is at the edge of the scrub 10.18 meters from the station in azimuth  $00^{\circ} 09'$ . Another reference mark, a bottle in the cone-shaped top of a round block of concrete, is 9.88 meters from the station in azimuth  $86^{\circ} 51'$ . A small oak and three small pine trees are in azimuths  $108^{\circ} 14'$ ,  $114^{\circ} 29'$ ,  $273^{\circ} 49'$ , and  $335^{\circ} 42'$ , respectively, from the station.

*Lansing* (Franklin County, S. C. M., 1859; 1873).—Lost.

*Sopchoppy* (Wakulla County, S. C. M., 1859; 1873).—Lost.

*Lansing 2* (Franklin County, F. W. P., 1873; 1910).—Lost.

*Sopchoppy 2* (Wakulla County, F. W. P., 1873; 1910).—Near the head of Ocklockonee Bay, on a rounded point on the north shore about one-half mile west of the mouth of a small creek, and about 25 meters back from high water. The station is marked according to note 4,<sup>1</sup> except that the underground mark is a stone pot 14 inches below the surface. The station is surrounded by a circle of small clamshells from a shell mound a few meters to the north. A reference mark, a round block of concrete with a sharp-pointed stone in the center, is on the shell mound 12.12 meters from the station in azimuth  $201^{\circ} 22'$ . Another reference mark, described in note 7,<sup>1</sup> is 9.69 meters from the station in azimuth  $289^{\circ} 41'$ . Two pine trees, each marked with a triangular blaze, are, respectively, 17.83 meters from the station in azimuth  $20^{\circ} 30'$  and 17.28 meters in azimuth  $68^{\circ} 12'$ .

*Robinson* (Franklin County, S. C. M., 1859).—On a shell bank west of an oak thicket on St. James Island about 1 mile south of the mouth of the Ocklockonee River. The station is marked by four oak stakes each 3 feet from the station and by the three instrument pegs. Three blazed pine trees are at the following distances from the station: 20.0 meters west, 3.2 meters north by west, and 19.6 meters northeast.

*Houston* (Franklin County, S. C. M., 1859).—On St. James Island about one-third of a mile inland and  $1\frac{1}{2}$  miles southeast of the mouth of the Ocklockonee River. The station is about 32 meters southeast of the southeast edge of a pond. It is marked by four oak stakes each 3 feet from the station, north, south, east, and west, and by the three instrument pegs. Three blazed pine trees are at the following distances from the station: 6.7 meters west, 18.6 meters north by east, and 8.2 meters south. The center of a pine stump is 15.5 meters north-west of the station.

*Ellis* (Franklin County, S. C. M., 1859).—On the western end of a small hill on St. James Island, about 2 miles south of the mouth of the Ocklockonee River and 60 meters south of the south edge of a pond. There is another small hill a short distance west of the station and a wagon road just beyond this hill. The station is marked by four oak stakes each 3 feet from the center north, south, east, and west, and by the three instrument pegs. Three blazed pine trees are at the following distances from the station: 21.6 meters N.  $45^{\circ}$  W., 17.1 meters S.  $45^{\circ}$  W., and 9.4 meters N.  $45^{\circ}$  E. A pine stump is 10.1 meters from the station in azimuth  $304^{\circ}$ .

*Forbes* (Franklin County, S. C. M., 1859).—On St. James Island, on the western end of a small hill about 25 meters north of the road to Baileys. The station is marked by four oak posts each 3 feet from the center north, south, east, and west and by the three instrument pegs. Three blazed pine trees are at the following distances from the station: 5.5 meters S.  $10^{\circ}$  E., 7.2 meters S.  $80^{\circ}$  W., and 25.1 meters N.  $60^{\circ}$  E.

*Bailey* (Franklin County, S. C. M., 1858; 1873).—This station is marked by a stone block  $2\frac{1}{2}$  feet below the ground. It was searched for without success in 1873, and if it still exists it can be located only by triangulation.

*Franklin* (Franklin County, S. C. M., 1858; 1910).—On the north shore of Alligator Harbor, opposite Peninsula Point, about 95 meters east of the mouth of a small creek and about 3 meters

<sup>1</sup> See pp. 61–62.



back from the edge of the grass and roots at high-water mark. The station is marked by a standard disk station mark in a square block of concrete built around and above the top of a granite post 4 inches square and 2 feet long, the concrete projecting 8 inches above the ground. One reference mark described in note 6,<sup>1</sup> is 10.07 meters north  $12^{\circ}$  west from the station, and another, described in note 7,<sup>1</sup> is 11.68 meters north  $11^{\circ} 08'$  east. Two pine trees, each marked with a triangular blaze and three nails, are, respectively, 11.80 meters N.  $40^{\circ} 40'$  E. from the station and 19.20 meters N.  $76^{\circ} 07'$  E. Four other pine trees are near the station, the nearest one being about 1 meter distant.

*Peninsula Point* (Franklin County, S. C. M., 1858; 1873).—Lost.

*Turkey Point* (Franklin County, S. C. M., 1858; 1873).—This station has been destroyed.

*Southwest Cape* (Franklin County, S. C. M., 1858; 1859).—Lost.

*Dog Island east* (Franklin County, S. C. M., 1857; 1909).—Lost.

*St. James Island* (Franklin County, S. C. M., 1858; 1909).—This station is marked by a stone block surrounded by four oak posts each 4 feet distant. It was searched for without success in 1909, and if it still exists it can be located only by triangulation.

*Palmetto Point* (Franklin County, S. C. M., 1858; 1909).—Lost.

*Dog Island A. M.* (Franklin County, S. C. M., 1858; 1909).—Lost.

*Crooked River* (Franklin County, S. C. M., 1856; 1909).—Lost.

*Royal Bluff* (Franklin County, S. C. M., 1856; 1909).—This station has been destroyed.

*St. George Island east base* (Franklin County, S. C. M., 1856; 1909).—Lost.

*St. George Island west base* (Franklin County, S. C. M., 1856; 1909).—Lost.

*Marsh Point* (Franklin County, S. C. M., 1856; 1909).—Lost.

*Gap Island* (Franklin County, S. C. M., 1856; 1909).—Lost.

*Cat Point* (Franklin County, S. C. M., 1856; 1909).—Lost.

*Bulkhead Point* (Franklin County, S. C. M., 1856; 1909).—Lost.

*Cedar Point* (Franklin County, S. C. M., 1856; 1909).—Near Farleys landing on Cedar Point on the north shore of St. George Island, on hard land nearly surrounded by marsh, about 2 meters from high-water mark and about 40 meters west of a clump of scrub palmettos and oaks. The station is marked by a bottle neck embedded in the top of a mass of concrete which is built around and above the top of a granite post. The underground mark is a 4-inch tile set in concrete 2 feet below the surface. A reference mark, a diagonal cross in the top of a square concrete post at the surface and a bottle set in concrete 2 feet below the surface, is 15.76 meters from the station in azimuth  $271^{\circ} 36'$ . Another reference mark, a 4-inch tile set in concrete with the top projecting 6 inches above the surface and a bottle 2 feet below the surface, is 33.81 meters from the station in azimuth  $271^{\circ} 25'$ .

*Apalachicola* (Franklin County, S. C. M., 1856; 1909).—Lost.

*Green Point 2* (Franklin County, S. C. M., 1856; 1895).—Near the outer end of Green Point, a prominent marshy point about 3 miles west of Apalachicola. The station is 4 meters from high-water mark and near a small grove of palmetto bushes. It is marked by a stone block surrounded by four stakes. No trace of the station could be found in 1895, and it has probably been destroyed by the receding of the shore line.

*Shell Bank* (Franklin County, S. C. M., 1856; 1895).—On the north shore of St. Vincent Sound, about 3 miles northeast of Indian Pass. The stone which originally marked the station was found in the water about 20 meters out from high-water mark in 1895. The stone was placed in an upright position and a stick of timber driven down beside it. The recovery of this station is very doubtful, and it should be used with great caution.

*Dead Oak Point* (Calhoun County, S. C. M., 1860).—On a sand hillock surrounded by dead oak trees on the mainland shore about halfway between Indian Pass and St. Josephs Bay. The station is marked by a stone monument surrounded by four stakes in the form of a square.

*Blacks Island* (Calhoun County, S. C. M., 1860; 1910).—Lost.

*St. Joseph* (Calhoun County, S. C. M., 1868; 1910).—Lost.

*Powell* (Calhoun County, S. C. M., 1868; 1910).—Lost.

<sup>1</sup> See pp. 61-62.



*San Carlos* (Calhoun County, S. C. M., 1868; 1910).—Lost.

*Consort* (Calhoun County, S. C. M., 1860; 1910).—On the bluff on the north or mainland shore at the entrance to St. Josephs Bay and just east of the lighthouse reservation. The station is about 9 meters from the edge of the bluff, and the foot of the bluff is about 60 meters from high-water mark. A fine spring is at the foot of the bluff a little west of the station. The station is marked by a standard disk station mark in the top of a round concrete block and underground by a hole in the top of a granite post 5 inches square and 2 feet long. A reference mark, a 6-foot galvanized iron pipe projecting 18 inches above the surface and set in a square block of concrete, is 10.58 meters from the station in azimuth  $229^{\circ} 32'$ . Another reference mark, similar to the first, except that the concrete is finished round, is 21.07 meters from the station in the same azimuth.

*St. Andrews Point* (Calhoun County, S. C. M., 1869; 1910).—Lost.

*Pine Point* (Calhoun County, S. C. M., 1869; 1910).—Lost.

*Franklin Point 2* (Calhoun County, S. C. M., 1869; 1910).—Lost.

*Nigel* (Calhoun County, S. C. M., 1869; 1902).—Lost.

*Spring Hill 2* (Calhoun County, S. C. M., 1869; 1910).—Lost.

*Hurricane Point* (Washington County, S. C. M., 1869; 1910).—Lost.

*Cypress Point* (Calhoun County, S. C. M., 1869; 1910).—Lost.

*Laurel* (Franklin County, E. S., 1909).—On a bluff on the shore of Apalachicola Bay near the southeast line of Laurel Street, Apalachicola. The station is marked by the neck of a bottle embedded in the top of a concrete post, which is 18 inches square below the surface and 10 inches square and 4 inches high above the surface, and is inscribed with a diagonal cross and a triangle. The underground mark is a 4-inch tile set in concrete 2 feet below the surface. A reference mark, the neck of a bottle, and a cross in the top of a square concrete block at the surface and a piece of 4-inch tile set in concrete 15 inches below the surface, is near the front fence in the lot of J. E. Grady, 1.5 meters southwest of the line fence of Laurel Street and 39.85 meters from the station in azimuth  $90^{\circ} 26'$ . Another reference mark, described in note 7,<sup>1</sup> is near the front fence in the lot of J. G. Ruge, 1.9 meters northeast of the line fence of Laurel Street and 30.06 meters from the station in azimuth  $134^{\circ} 37'$ .

*West Pass 2* (Franklin County, E. S., 1909).—On the southern part of the northwest end of Sand Island. The station is marked by a 4-inch tile embedded in a block of concrete 10 inches square, which projects 8 inches above the ground. The underground mark is a bottle embedded in a block of concrete 2 feet below the surface. A reference mark, a 1-inch galvanized iron pipe 6 feet long, projecting 1 foot above the ground and surrounded by a block of concrete 10 inches square, is in line to a pine tree 79 paces beyond, and is 33.13 meters from the station in azimuth  $321^{\circ} 45'$ . Another reference mark, similar to the first, except that the iron pipe is  $1\frac{1}{2}$  inches in diameter, is in line to a pine tree 180 paces beyond and is 39.51 meters from the station in azimuth  $252^{\circ} 46'$ .

*West Pass* (Franklin County, S. C. M., 1860; 1909).—On the southern part of the northwest end of Sand Island. The station is marked by a cross in the top of a granite post just below the surface of the ground. *West Pass 2* (see above) is 44.5 meters from the station in azimuth  $230^{\circ} 27'$ .

*St. Vincent Point 2* (Franklin County, E. S., 1910).—On St. Vincent Point, at the northeast corner of St. Vincent Island, near the southern part of an area of firm ground between the sand spit at the eastern end of the point and the marsh to the westward. The station is marked by a standard disk station mark set in concrete at the surface and a similar mark set in concrete 3 feet below the surface. A reference mark, described in note 6,<sup>1</sup> is in line to the only oak tree on the point 13.08 meters from the station in azimuth  $198^{\circ} 24'$ . The oak and three palmettos, each marked with a triangular blaze, are at the following distances and azimuths from the station: 21.50 meters,  $197^{\circ} 08'$ ; 12.60 meters,  $7^{\circ} 26'$ ; 6.40 meters,  $63^{\circ} 32'$ ; and 15.10 meters,  $108^{\circ} 15'$ .

<sup>1</sup> See pp. 61-62.



*New Inlet 2* (Franklin County, E. S., 1910).—Near the middle of a crescent-shaped sand hill on the ocean side of St. Georges Island, just west of an inlet known as New Inlet, which has been closed for many years. The station is marked by a standard disk station mark set in concrete at the surface and a similar mark set in concrete 3 feet below the surface. A reference mark, described in note 7,<sup>1</sup> is in line to a crooked palmetto tree 42.58 meters from the station in azimuth  $96^{\circ} 47'$ . Another reference mark, described in note 6,<sup>1</sup> is 33.46 meters from the station in azimuth  $171^{\circ} 31'$ . Two palmetto trees, each marked with a triangular blaze, are, respectively, 46.20 meters from the station in azimuth  $97^{\circ} 04'$  and 72.80 meters in azimuth  $172^{\circ} 01'$ .

*Cat Point 2* (Franklin County, E. S., 1909).—On Cat Point, at the northwest end of Apalachicola Bay, from 50 to 75 meters west of a wharf on the south side of the point and about the same distance from a shell heap north of the wharf. The station is marked by the intersection of the median lines of an inscribed triangle in the top of a concrete post, the top of which is finished in the form of a triangular column 13 inches on a side. The underground mark is a tile set in concrete 2 feet below the surface. A reference mark, a 4-inch tile set in concrete at the surface, and a bottle set in concrete 2 feet below the surface is among some small oaks 15.80 meters from the station in azimuth  $165^{\circ} 38'$ . Another reference mark, a diagonal cross in the top of a square concrete post at the surface, and a bottle set in concrete 2 feet below the surface is 15.80 meters from the station in azimuth  $211^{\circ} 33'$ .

*Bulkhead 2* (Franklin County, E. S., 1909).—On Bulkhead Point, on the north shore of St. Georges Sound, on a small sand hill 10 feet high, 15 meters from high-water mark. The station is marked by a cross in the top of a concrete post 10 inches square and underground by a 4-inch tile set in concrete 2 feet below the surface. A reference mark, a diagonal cross in the top of a square concrete post at the surface, and a bottle set in concrete 2 feet below the surface is near two small oak trees 68.55 meters from the station in azimuth  $292^{\circ} 53'$ . Another reference mark, a tile set in concrete with the top 3 inches above the surface and a bottle 2 feet below the surface, is on a small island 159.98 meters from the station in azimuth  $224^{\circ} 22'$ .

*Yent* (Franklin County, E. S., 1909).—On Green Point, on the north shore of St. Georges Sound, on a narrow strip of sand separated by a marsh from the pine woods to the north. The station is marked by a 4-inch tile set in concrete. Three pine trees, each marked with a triangular blaze, are at the edge of the woods in azimuths from the station as follows:  $109^{\circ} 56'$ ,  $167^{\circ} 44'$ , and  $199^{\circ} 48'$ .

*Gap Island 2* (Franklin County, E. S., 1909).—On a sand ridge at the northern extremity of Gap Island, just north of a marsh pond, which separates the ridge from the hard marsh to the south. The station is marked by a cross in the top of a concrete post 10 inches square and underground by a piece of 4-inch tile 2 feet below the surface. A reference mark, a 4-inch tile set in concrete, with the top 5 inches above the surface, and a bottle set in concrete 2 feet below the surface, is 20.58 meters from the station in azimuth  $264^{\circ} 34'$ . Another reference mark, a diagonal cross in the top of a square concrete post at the surface and a brick set in concrete 2 feet below the surface, is 21.10 meters from the station in azimuth  $325^{\circ} 09'$ . A pine tree marked with a triangular blaze is in azimuth  $312^{\circ} 08'$  from the station and another pine tree marked with three horizontal gashes is in azimuth  $314^{\circ} 24'$ .

*Marsh Point 2* (Franklin County, E. S., 1909).—On Marsh Point, on the north shore of St. Georges Sound. The station is marked by a cross in the top of a concrete post 10 inches square and underground by a 4-inch tile set in concrete 2 feet below the surface. A reference mark, a 4-inch tile set in concrete, with its top projecting 3 inches above the surface, and a bottle set in concrete 2 feet below the surface, is 21.66 meters from the station in azimuth  $118^{\circ} 06'$ . Another reference mark, a diagonal cross in the top of a concrete post at the surface and a bottle set in concrete 2 feet below the surface, is 56.56 meters from the station in azimuth  $152^{\circ} 12'$ . Three pine trees, each marked with a triangular blaze, are at the edge of the woods at the following distances and azimuths from the station: 19.70 meters,  $91^{\circ} 00'$ ; 9.15 meters,  $166^{\circ} 23'$ ; and 20.70 meters,  $201^{\circ} 15'$ .

<sup>1</sup> See pp. 61-62.



*Spartan* (Franklin County, E. S., 1909).—On low ground just back of a narrow strip of marsh on a rounded point on the north shore of St. George Island, about  $2\frac{1}{2}$  miles east of Gap Island. The station is marked by a 4-inch tile set in concrete with the top projecting 5 inches and underground by a similar tile set in concrete 2 feet below the surface. Two reference marks, each described in note 7,<sup>1</sup> are, respectively, 38.32 meters from the station in azimuth  $295^{\circ} 04'$  and 28.83 meters in azimuth  $328^{\circ} 00'$ .

*Royal Bluff 2* (Franklin County, E. S., 1909).—On Royal Bluff, on the north shore of St. George Sound. The station is marked by a 4-inch tile set in concrete with the top projecting 3 inches and underground by a piece of 4-inch tile set in concrete 2 feet below the surface. A reference mark, a cross in the top of a concrete post at the surface of the ground and a bottle embedded in concrete 2 feet below the surface, is 10.69 meters from the station in azimuth  $96^{\circ} 56'$ . Another reference mark, similar to the first, is 9.96 meters from the station in azimuth  $164^{\circ} 37'$ .

*St. George Island east* (Franklin County, E. S., 1909).—On a sand hill near the eastern end of St. George Island. The station is marked by a galvanized iron pipe  $1\frac{1}{2}$  inches in diameter and 8 feet long at the center of a 4-inch tile embedded in a mass of concrete 5 feet deep, the pipe and the tile projecting 1 foot above the ground. A reference mark, described in note 7,<sup>1</sup> is on a sand hill 20.70 meters from the station in azimuth  $261^{\circ} 30'$ . Another reference mark, a 4-inch tile set in concrete projecting 6 inches above the surface and a bottle set in concrete 2 feet below the surface, is 37.79 meters from the station in azimuth  $17^{\circ} 41'$ .

*Crooked River 2* (Franklin County, E. S., 1909).—On a sand hill on the point about three-fourths mile west of the mouth of the Crooked River. The station is marked by a 4-inch tile set in concrete, the top of the tile projecting 4 inches above the concrete. The underground mark is a bottle embedded in the top of a concrete post 2 feet long 2 feet below the surface. A reference mark, a diagonal cross in the top of a concrete post at the surface and a bottle embedded in concrete 18 inches below the surface, is on a sand bluff 94.25 meters from the station in azimuth  $89^{\circ} 36'$ . A pine tree marked with a triangular blaze is at the foot of the hill, 15.90 meters from the station in azimuth  $125^{\circ}$ .

*Dog Island west* (Franklin County, E. S., 1909).—On the north side of the point at the west end of Dog Island, about midway between the end of the point and a clump of pine trees consisting of three large trees and one small one. The station is marked by a galvanized iron pipe  $1\frac{1}{2}$  inches in diameter and 8 feet long at the center of a 4-inch tile embedded in concrete, the top of the iron pipe projecting 1 foot above the top of the tile and 2 feet above the ground. A reference mark, a 4-inch tile set in concrete with its top projecting 6 inches above the surface and a bottle set in concrete 2 feet below the surface, is in line to the most northerly of the pine trees, 16.19 meters from the station in azimuth  $316^{\circ} 09'$ . Another reference mark, described in note 7,<sup>1</sup> is 31.36 meters from the station in azimuth  $46^{\circ} 09'$ . The southwestern one of the four pine trees mentioned above is in azimuth  $341^{\circ} 35'$  and the next pine to the northeast is in azimuth  $333^{\circ} 51'$ .

*Dog Island east 2* (Franklin County, E. S., 1909).—On a sand hill near the northeast point of Dog Island and just north of a lone pine tree. The station is marked by a galvanized iron pipe  $1\frac{1}{2}$  inches in diameter and 8 feet long at the center of a 4-inch tile embedded in concrete, the iron pipe projecting about 10 inches above the top of the tile. A reference mark, a 4-inch tile set in concrete at the surface and a bottle embedded in concrete 2 feet below the surface, is on the same sand hill 28.10 meters from the station in azimuth  $70^{\circ} 18'$ . Another reference mark, described in note 7,<sup>1</sup> is on a sand hill 62.21 meters from the station in azimuth  $205^{\circ} 36'$ . Two pine trees, each marked with a triangular blaze, are, respectively, 19.5 meters from the station in azimuth  $258^{\circ} 48'$  and 44.10 meters in azimuth  $320^{\circ} 17'$ .

*Palmetto 2* (Franklin County, E. S., 1909).—On St. James Island, on the second point east of the mouth of the Crooked River. The point is sandy, and there are a few scattered pine trees near the station and a cleared field just to the northwest. The station is marked by a 4-inch tile set in concrete and projecting 3 inches above the surface and underground by a

<sup>1</sup> See pp. 61-62.



bottle set in concrete 2 feet below the surface. A reference mark, a diagonal cross in the top of a concrete post set flush with the surface and a bottle set in concrete 2 feet below the surface, is 16.86 meters from the station in azimuth  $192^{\circ} 37'$ . Four pine trees, each marked with a triangular blaze, are at the following distances and azimuths from the station: 9.07 meters,  $119^{\circ}$ ; 29.95 meters,  $151^{\circ}$ ; 44.60 meters,  $178^{\circ}$ ; and 16.08 meters,  $224^{\circ}$ .

*St. James Island 2* (Franklin County, E. S., 1909).—On low ground covered with grass and scrubs about 1 mile east of Lanark. The station is marked by a 4-inch tile set in concrete with its top projecting a few inches above the ground. A reference mark, a concrete post 10 inches square inscribed with a diagonal cross and an arrow pointing to the station, is 10.12 meters distant in azimuth  $120^{\circ} 11'$ . Another reference mark, similar to the first except that there is a bottle embedded in the top of the concrete, is 10.31 meters from the station in azimuth  $215^{\circ} 35'$ .

*Lands end* (Washington County, E. S., 1910).—On the south shore of the lower part of St. Andrews Bay, on a sand hill near the extremity of the sand spit known as Lands End. The station is marked according to note 4.<sup>1</sup>

*Weiley* (Calhoun County, E. S., 1910).—This station is identical with the United States Engineers station *D* of 1908. It is on the north shore of the lower part of St. Andrews Bay, about 48 meters from high-water mark and just back of a palmetto tree to which the signal was fastened. The station is marked according to note 3.<sup>1</sup> A reference mark, described in note 6,<sup>1</sup> is 11.28 meters from the station in azimuth  $163^{\circ} 41'$ , and another, described in note 5,<sup>1</sup> is 13.98 meters distant in azimuth  $237^{\circ} 51'$ . Three trees marked with triangular blazes, are at the following distances and azimuths from the station: Palmetto, 16.16 meters,  $176^{\circ} 46'$ ; Palmetto, 2.74 meters,  $201^{\circ}$ ; and pine, 15.70 meters,  $206^{\circ} 56'$ .

*Hurricane West* (Calhoun County, E. S., 1910).—This station is identical with the United States Engineers station *F* of 1908. It is on the highest sand hill on the Gulf side of the west end of Hurricane Island. The station is marked by a copper pin in the top of a concrete post 5 inches square.

*Hurricane East* (Calhoun County, E. S., 1910).—This station is identical with the United States Engineers station *H* of 1908. It is on a sand hill on the east end of Hurricane Island and about midway between St. Andrews Bay and the Gulf. The station is marked by a cross in the top of a concrete post 7 inches square.

*Sand Bluff* (Calhoun County, E. S., 1910).—On a sand hill rising from a broad stretch of low sand on the north shore of the lower part of St. Andrews Bay and nearly opposite the east end of Hurricane Island. Low grass land is north of the station and beyond the grass is sand and pine trees. The station is marked according to note 3.<sup>1</sup> Two pine trees marked with triangular blazes are, respectively, 36.70 meters from the station in azimuth  $164^{\circ} 54'$  and 44.50 meters in azimuth  $247^{\circ} 53'$ .

*Bayou Bluff* (Calhoun County, E. S., 1910).—On the west end of a sand bluff opposite the entrance to St. Andrews Bay and a little east of the entrance to a bayou that winds back of the bluff. The underground mark at the station is a well pipe  $2\frac{1}{2}$  feet long set in concrete. This concrete extends to the surface and is finished in the form of a truncated pyramid 8 inches square on top, in which is set a standard disk station mark for the surface mark. Three pine trees, the first two marked with three blazes each and the other two with single triangular blazes, are at the following distances and azimuths from the station: 14.9 meters,  $109^{\circ} 49'$ ; 10.95 meters,  $137^{\circ} 19'$ ; 38.30 meters,  $292^{\circ} 14'$ ; and 41.65 meters,  $298^{\circ} 15'$ .

*Spring* (Calhoun County, E. S., 1910).—On a low sand hill on the mainland shore of St. Andrews Sound, about 60 meters back from high-water mark in the bight east of Hog Island. The station is marked according to note 3.<sup>1</sup> A reference mark, described in note 5,<sup>1</sup> is 20.35 meters from the station in azimuth  $170^{\circ} 45'$ , and another, described in note 6,<sup>1</sup> is 28.02 meters distant in azimuth  $231^{\circ} 14'$ . Three trees marked with triangular blazes are at the following distances and azimuths from the station: 15.75 meters,  $139^{\circ} 17'$ ; 8.78 meters,  $191^{\circ} 49'$ ; and 21.20 meters,  $212^{\circ} 05'$ .

<sup>1</sup> See pp. 61-62.



• *Anchor* (Calhoun County, E. S., 1910).—On the low shifting sand spit near the southwest end of what is known as Crooked Island and about midway between St. Andrews Sound and the Gulf near where the sand spit bends to the northward. The station is marked according to note 3.<sup>1</sup>

*Astral* (Calhoun County, E. S., 1910).—On the highest of a group of sand hills on the Gulf side of the west end of Crooked Island and about 30 meters from high-water mark. The station is marked according to note 3.<sup>1</sup>

*Areola* (Calhoun County, E. S., 1910).—On a sand hill on the first point east of the entrance on the north or mainland shore of St. Andrews Sound and about 6 meters from high-water mark. The station is marked according to note 3.<sup>1</sup> A reference mark, described in note 6,<sup>1</sup> is on a sand hill 57.73 meters from the station in azimuth  $160^{\circ} 22'$ . Three pine trees marked with triangular blazes are at the following distances and azimuths from the station: 10.05 meters,  $205^{\circ} 43'$ ; 17.10 meters,  $230^{\circ} 46'$ ; and 10.80 meters,  $292^{\circ} 45'$ .

*Abbot* (Calhoun County, E. S., 1910).—On the first point east of the entrance on the southwest shore of St. Andrews Sound, about 25 meters from high-water mark and the same distance from a small sand hill back of the station. The station is marked according to note 3.<sup>1</sup> A reference mark, described in note 6,<sup>1</sup> is under a large pine tree 46.40 meters from the station in azimuth  $4^{\circ} 11'$ . Two pine trees marked with triangular blazes are, respectively, 52.10 meters from the station in azimuth  $8^{\circ} 01'$  and 59.60 meters in azimuth  $51^{\circ} 09'$ . The distance between the blazed pines is 41.6 meters and from the reference mark to the first-mentioned blazed pine is 6.50 meters.

*Agog* (Calhoun County, E. S., 1910).—On the Gulf side of the southeast end of the sand bluff on Crooked Island southeast of the entrance to St. Andrews Sound. The station is marked according to note 3.<sup>1</sup>

*Arrow* (Calhoun County, E. S., 1910).—On a sand ridge on a point near the middle of the northeast shore of St. Andrews Sound. The station is marked according to note 3.<sup>1</sup> A reference mark, described in note 5,<sup>1</sup> is 44.27 meters from the station in azimuth  $196^{\circ} 09'$ , and another, described in note 6,<sup>1</sup> is 40.43 meters distant in azimuth  $247^{\circ} 53'$ . Three pine trees marked with triangular blazes are at the following distances and azimuths from the station: 19.5 meters,  $173^{\circ} 09'$ ; 17.3 meters,  $204^{\circ} 12'$ ; and 17.1 meters,  $250^{\circ} 12'$ .

*Atom* (Calhoun County, E. S., 1910).—On an isolated sand hill about 25 feet high between the Gulf and the southeastern end of St. Andrews Sound. The station is marked according to note 3.<sup>1</sup>

*Asp* (Calhoun County, E. S., 1910).—On a small sand hill near a large pine tree on a point on the northeast shore of St. Andrews Sound and about 40 meters from high-water mark. The station is marked according to note 3.<sup>1</sup> A reference mark, described in note 5,<sup>1</sup> is 38.93 meters from the station in azimuth  $178^{\circ} 38'$ , and another, described in note 6,<sup>1</sup> is 45.06 meters distant in azimuth  $247^{\circ} 56'$ . The large pine tree mentioned above is marked with a triangular blaze and is 3.10 meters from the station in azimuth  $292^{\circ}$ .

*Acorn* (Calhoun County, E. S., 1910).—On a sand hill on the northeast shore of St. Andrews Sound, on the last point before reaching Goose Bayou, and 68 paces from high-water mark. The station is marked according to note 3.<sup>1</sup> A reference mark, described in note 6,<sup>1</sup> is 24.46 meters from the station in azimuth  $239^{\circ} 04'$ . Three trees marked with triangular blazes are at the following distances and azimuths from the station: 24 meters,  $4^{\circ} 59'$ ; 14.55 meters,  $189^{\circ} 32'$ ; and 16.14 meters,  $287^{\circ} 22'$ .

*Apex* (Calhoun County, E. S., 1910).—On a bluff about 20 feet high a mile or more west of St. Andrews Point and the Bell Shoals. The station is about 2 meters from the edge of the bluff, and at very high water the Gulf washes the foot of the bluff. The station is marked according to note 3.<sup>1</sup> A reference mark, described in note 5,<sup>1</sup> is on the first ridge of sand hills inland, and is 78.67 meters, horizontal distance, from the station in azimuth  $171^{\circ} 06'$ . Another reference mark, described in note 6,<sup>1</sup> is on this same ridge, 74.04 meters, horizontal distance,

<sup>1</sup> See pp. 61-62.



from the station in azimuth  $220^{\circ} 39'$ . The distance between the reference marks is 64.13 meters.

*St. Joseph Point 2* (Calhoun County, E. S., 1910).—On the highest sand hill on the bay side of St. Josephs Point. The station is marked according to note 4.<sup>1</sup> A reference mark, a 6-foot galvanized iron pipe projecting 18 inches above the surface and set in a mass of concrete which is finished round above the ground, is on the ridge of sand hills back of the station 38.77 meters from the station in azimuth  $203^{\circ} 53'$ . Another reference mark, similar to the first except that the concrete is finished square above the ground, is on the same ridge 46.10 meters distant in azimuth  $149^{\circ} 45'$ .

*San Carlos 2* (Calhoun County, E. S., 1910).—On the sand bluff well back from the shore on what is locally known as Six Mile Point. The station is marked according to note 4.<sup>1</sup> A reference mark, a 6-foot galvanized iron pipe projecting 18 inches above the surface and set in a mass of concrete which is finished square above the ground, is on a sand ridge 32.81 meters from the station in azimuth  $337^{\circ} 08'$ . Another reference mark, similar to the first except that the concrete is finished round above the ground, is on the same ridge 33.82 meters distant in azimuth  $34^{\circ} 32'$ . The distance between the reference marks is 31.74 meters. Two pine trees marked with triangular blazes are, respectively, 20.25 meters from the station in azimuth  $347^{\circ} 19'$  and 25.40 meters in azimuth  $58^{\circ} 31'$ .

*Pompano* (Calhoun County, E. S., 1910).—On a point on the west side of St. Josephs Bay on low sand 65 meters from high-water mark. There are some sand hills just back of the station. The station is marked according to note 4.<sup>1</sup> A reference mark, described in note 6,<sup>1</sup> is 27.17 meters from the station in azimuth  $82^{\circ} 33'$ .

*St. Joseph 2* (Calhoun County, E. S., 1910).—In the old railroad grade at the site of the old town of St. Joseph and about 3 meters from high-water mark. The station is marked according to note 8.<sup>1</sup> A reference mark, described in note 6,<sup>1</sup> is 10.65 meters from the station in azimuth  $273^{\circ} 30'$ .

*Eagle Point 2* (Calhoun County, E. S., 1910).—About three-fourths of a mile southeast of Eagle Harbor, on a narrow sand ridge, back of which is a small pond and marsh. The station is marked according to note 4.<sup>1</sup>

*Blacks Island A. M.* (Calhoun County, E. S., 1910).—On the north end of Blacks Island, in St. Josephs Bay, and about 10 meters from high-water mark. The station is marked according to note 8.<sup>1</sup> A reference mark, described in note 7,<sup>1</sup> is 7.52 meters from the station in azimuth  $56^{\circ} 50'$ . Two palmetto trees marked with triangular blazes are, respectively, 7.08 meters from the station in azimuth  $100^{\circ} 56'$  and 9.67 meters in azimuth  $55^{\circ} 00'$ .

#### SUPPLEMENTARY POINTS.

*St. Marks River east* (Franklin County, E. S., 1910).—About 3 miles east of Apalachicola, on the point just east of the west mouth of the St. Marks River, on a bank of sand about 2 feet deep about 30 meters from the water's edge. The station is marked by a standard disk station mark set in concrete level with the surface of the sand.

*Catholic church spire, Apalachicola* (Franklin County, P. A. W., 1902; 1909).—A cone-shaped spire rising from a square belfry. The belfry is painted white and has green window blinds.

*St. George light* (Franklin County, P. A. W., 1902; 1910).—A white channel beacon in Apalachicola Bay about  $3\frac{1}{2}$  miles east of West Pass and nearly abreast of Cape St. George Lighthouse.

*A (U. S. E.)* (Franklin County, E. S., 1910).—On St. Vincent Island opposite Sand Island, at the northeast end of a short base line. The station is marked by a copper pin one-fourth inch in diameter in the top of a concrete post 4 inches square on top which projects 1 foot above the ground.

*B (U. S. E.)* (Franklin County, E. S., 1910).—On St. Vincent Island opposite Sand Island, at the southwest end of a short base line. The station is marked by a copper pin one-

<sup>1</sup>See pp. 61-62.



fourth inch in diameter in the top of a concrete post 4 inches square on top which projects 1 foot above the ground.

*San Pedro 2* (Calhoun County, E. S., 1910).—About 3 miles north of Cape San Blas Light-house, on a high sand hill on the second sand ridge from St. Josephs Bay and about midway between the bay and the Gulf. The station is marked by a standard disk station mark in the top of a round concrete block and underground by a granite post 5 inches square and 2 feet long set 2 feet below the surface.

*Hog Island* (Calhoun County, E. S., 1910).—In the lower part of St. Andrews Bay, on the most westerly sand hill on what is known as Hog Island. The station is marked according to note 3.<sup>1</sup>

#### ST. ANDREWS BAY.

##### PRINCIPAL POINTS.

*St. Andrews Bay, west base* (Washington County, S. C. M., 1870).—Lost.

*Davis Point 2* (Calhoun County, S. C. M., 1869; 1910).—Lost.

*Dyers Point 2* (Washington County, S. C. M., 1870; 1910).—Lost.

*St. Andrews Bay, east base* (Washington County, S. C. M., 1870).—Lost.

*Courtney Point 2* (Washington County, S. C. M., 1869; 1910).—Lost.

*Laguna* (Washington County, S. C. M., 1869; 1910).—Lost.

*Vista Buena 2* (Washington County, S. C. M., 1870; 1910).—On Buena Vista Point on the north shore of St. Andrews Bay, just below the bluff on which the house of Mrs. L. M. Ware is situated. The station is marked by a cross in the top of a granite post 2 feet long and 6 inches square at the top which is buried 15 inches below the surface of the ground. Around the upper 6 inches of this stone and extending to the surface is a concrete block in the top of which is a standard disk station mark. On the bluff back of the station and just outside the fence surrounding the residence of Mrs. Ware are two reference marks, one, described in note 6,<sup>1</sup> at the west end of the fence 44.29 meters, horizontal distance, from the station in azimuth  $149^{\circ} 22'$ , and the other, described in note 7,<sup>1</sup> at the east end of the fence 37.51 meters, horizontal distance, from the station in azimuth  $209^{\circ}$ . A cedar tree is 12.26 meters from the station in azimuth  $60^{\circ} 43'$ , and an oak is 43.33 meters distant in azimuth  $275^{\circ} 08'$ .

*West Bay Point* (Washington County, S. C. M., 1870; 1910).—At storm water line on West Bay Point, known locally as Shell Point, at the entrance to the west arm of St. Andrews Bay. The station is marked according to note 3,<sup>1</sup> except that the underground mark is a granite block 4 inches square and 2 feet long 18 inches below the surface. A reference mark, described in note 5,<sup>1</sup> is on a shell mound 17.17 meters from the station in azimuth  $44^{\circ} 46'$ . Another reference mark, described in note 6,<sup>1</sup> is 11.12 meters from the station in azimuth  $100^{\circ} 14'$ . A cedar tree marked with a triangular blaze is 12.79 meters from the station in azimuth  $352^{\circ} 07'$ .

*North Bay Point* (Washington County, S. C. M., 1870; 1910).—On a sand ridge covered by a low bushy growth on the west side of North Bay Point between the north and west arms of St. Andrews Bay, 2 meters south of the crest of the ridge and about  $2\frac{1}{2}$  meters from ordinary high-water mark. The station is marked by a standard disk station mark in the top of a concrete block 2 feet in diameter and underground by a granite block 4 inches square and 2 feet long 1 foot below the surface. A reference mark, described in note 7,<sup>1</sup> is 5.26 meters from the station in azimuth  $160^{\circ} 09'$ . Another reference mark, described in note 6,<sup>1</sup> is 15.105 meters from the station in azimuth  $289^{\circ} 21'$ . A lone pine tree near the old salt works on the point is in azimuth  $254^{\circ} 43'$ .

*Crane Point* (Washington County, S. C. M., 1871; 1910).—On Crane Point on the south shore of the west arm of St. Andrews Bay, about 700 meters northwest of the entrance to a shallow, circular lagoon. The station is at high-water mark near the west end of a strip of

<sup>1</sup> See pp. 61-62.



firm ground which is between the marsh and the bay. It is marked according to note 3,<sup>1</sup> except that the underground mark is a granite block 2 feet below the surface. A reference mark, described in note 7,<sup>1</sup> is 12.33 meters from the station in azimuth  $302^{\circ} 46'$ , and another, described in note 6,<sup>1</sup> is 5.42 meters distant in azimuth  $2^{\circ} 12'$ . A small cedar tree near the east end of the ridge is 50.40 meters from the station in azimuth  $294^{\circ} 20'$  and a second cedar is 5.7 meters distant in azimuth  $21^{\circ}$ .

*Pelican Point 2* (Washington County, E. S., 1910).—Near the center of a hummock on the western one of two projections of a low rounded point on the south side of the west arm of St. Andrews Bay. The hummock extends to the water's edge and is covered with scrub palmetto. The station is marked according to note 4.<sup>1</sup> A reference mark, described in note 7,<sup>1</sup> is 8.99 meters from the station in azimuth  $108^{\circ} 09'$ . Another reference mark, described in note 6,<sup>1</sup> is 6.71 meters from the station in azimuth  $294^{\circ} 38'$ . A lone live oak marked with a triangular blaze is on the hummock 5.90 meters from the station in azimuth  $101^{\circ} 30'$ .

*Clio 2* (Washington County, E. S., 1910).—On the first rounded point north of North Bay Point, on the north shore of the west arm of St. Andrews Bay. It is near the center in a north and south direction of a hummock known locally as Cedar Hummock and about 8 meters from high-water mark. The station is marked according to note 4<sup>1</sup> except that the bottle of the underground mark is replaced by a cedar peg. A reference mark, described in note 7,<sup>1</sup> is 4.23 meters from the station in azimuth  $239^{\circ} 22'$ . Another reference mark, described in note 6,<sup>1</sup> is near a large live-oak tree, 15.13 meters from the station in azimuth  $308^{\circ} 14'$ . Two cedar trees and one oak tree, each marked with a triangular blaze, are at the following distances and azimuths, respectively, from the station: 14.75 meters,  $164^{\circ} 24'$ ; 8.05 meters,  $238^{\circ} 04'$ ; and 12.94 meters,  $329^{\circ} 45'$ .

*Medway 2* (Washington County, E. S., 1910).—On the sand ridge at the end of the point on the west side of the mouth of Burnt Mill Creek, on the north side of the west arm of St. Andrews Bay. The station is marked according to note 4.<sup>1</sup> The end of the sand spit is 40 paces from the station in azimuth  $41^{\circ}$ , and a clump of small cedars near the water's edge is 65 paces distant in azimuth  $194^{\circ}$ .

*Orcus 2* (Washington County, E. S., 1910).—On the high sand ridge near the shore on the north side of the entrance to West Bay Creek, at the head of the west arm of St. Andrews Bay. The station is marked according to note 4.<sup>1</sup> A reference mark, described in note 6,<sup>1</sup> is 9.86 meters from the station in azimuth  $127^{\circ} 45'$ , and another, described in note 7,<sup>1</sup> is 9.76 meters from the station in azimuth  $178^{\circ} 15'$ . Five trees, each marked with a triangular blaze, are at the following distances and azimuths from the station: Pine near the water's edge, 14.56 meters,  $17^{\circ} 36'$ ; oak, 15.35 meters,  $118^{\circ} 14'$ ; oak, 15.47 meters,  $131^{\circ} 46'$ ; double oak, 7.20 meters,  $154^{\circ} 49'$ ; oak, 12.18 meters,  $177^{\circ} 56'$ .

*Swan 2* (Washington County, E. S., 1910).—On a rounded point on the east side of the head of the west arm of St. Andrews Bay, on the crest of a long narrow sand ridge on which there are a few cedar trees and back of which are marsh ponds bare at low water. The station is marked according to note 4.<sup>1</sup> A reference mark, described in note 7,<sup>1</sup> is 7.83 meters from the station in azimuth  $332^{\circ} 38'$ , and a conspicuous, umbrella-shaped cedar tree is 6.23 meters distant in azimuth  $78^{\circ}$ .

*Iris 2* (Washington County, E. S., 1910).—Near the highest point of a shell bank on a rounded point on the east side of St. Andrews Bay a little south of east from West Bay Point. The station is marked according to note 4.<sup>1</sup> A reference mark, described in note 6,<sup>1</sup> is 91.12 meters from the station in azimuth  $6^{\circ} 13'$ , and another, described in note 7,<sup>1</sup> is 9.22 meters distant in azimuth  $164^{\circ} 02'$ . Both reference marks are on the shell bank. There are several pine trees with old blazes in the vicinity said to be old landmarks, and one of these is 12.24 meters from the station in azimuth  $248^{\circ} 27'$ . Three pine trees, each marked with a triangular blaze, are at the following distances and azimuths from the station: 5.34 meters,  $150^{\circ} 15'$ ; 13.83 meters,  $271^{\circ} 51'$ ; and 12.30 meters,  $34^{\circ} 21'$ .

<sup>1</sup> See pp. 61-62.

*Ceres 2* (Washington County, E. S., 1910).—On a long low point known as Little Oyster Bar Point just north of Upper Goose Bayou on the east side of the north arm of St. Andrews Bay. The station is on the crest of a scrub-covered sand ridge which is just back of the bare sand at the tip of the point, and is marked according to note 3.<sup>1</sup> A reference mark, described in note 6,<sup>1</sup> is near a small oak tree 7.60 meters from the station in azimuth 299° 33'. Two oak trees, the first marked with a triangular blaze, are, respectively, 10.60 meters from the station in azimuth 305° 35' and 16.60 meters in azimuth 356° 22'.

*Juno Bayou 2* (Washington County, E. S., 1910).—On a point of hummock land south of the entrance to Alligator Bayou on the northwest side of the north arm of St. Andrews Bay. The station is marked according to note 3.<sup>1</sup> A reference mark, described in note 6,<sup>1</sup> is 7.99 meters from the station in azimuth 200° 31'. Two burnt stumps, one near the water and the other on the marsh, are, respectively, 18.80 meters from the station in azimuth 306° 02' and 10.10 meters in azimuth 116° 02'.

*Sulphur Point 2* (Washington County, E. S., 1910).—In a clump of bushes just west of the edge of the woods on Sulphur Point, a long, low, sandy point on the northeast side of St. Andrews Bay. The station is marked according to note 3.<sup>1</sup> A reference mark, described in note 6,<sup>1</sup> is under a large crooked oak 15.37 meters from the station in azimuth 267° 52'. Two oak trees are, respectively, 15.20 meters from the station in azimuth 260° 36' and 11.65 meters in azimuth 299° 01'.

*Perdita 2* (Washington County, E. S., 1910).—On the first point south of West Bay Point on the west side of St. Andrews Bay, just north of a small bayou and 14 meters from high-water mark. The station is marked according to note 3.<sup>1</sup> A reference mark, described in note 6,<sup>1</sup> is 10.40 meters from the station in azimuth 103° 25'. Other distances and azimuths were measured as follows: Double pine, marked with a triangular blaze, 8.10 meters, 152° 07'; small pine, 10.36 meters, 84°; and two small oaks, 19.80 meters, 350° 29'.

*Aliena 2* (Washington County, E. S., 1910).—On a rounded point on the west side of St. Andrews Bay, opposite Sulphur Point, on the property of J. C. Halley, about midway between the shore and a road parallel to the shore. The station is marked according to note 3.<sup>1</sup> A reference mark, described in note 5,<sup>1</sup> is 11.07 meters from the station in azimuth 90° 20', and another, described in note 6,<sup>1</sup> is 11.11 meters distant in azimuth 30° 56'. Three pine trees, marked with old blazes, are at the following distances and azimuths from the station: 21.96 meters, 30° 56'; 18.87 meters, 90° 21'; and 20.93 meters, 186° 44'.

*Bluff* (Washington County, E. S., 1910).—On a bluff on the southwest shore of St. Andrews Bay, opposite Dyers Point, just east of an old field and the ruins of a house. The station is marked according to note 4.<sup>1</sup> A reference mark, described in note 7,<sup>1</sup> is 7.23 meters from the station in azimuth 26° 20', and another, described in note 6,<sup>1</sup> is 12.55 meters distant in azimuth 106° 53'.

*Dyers Point 3* (Washington County, E. S., 1910).—On Dyers Point, on the north side of St. Andrews Bay, on top of the bluff, which is composed of sand and oystershells and is covered with small oak trees. The station is marked according to note 3.<sup>1</sup> A reference mark, described in note 5,<sup>1</sup> is 5.86 meters from the station in azimuth 237° 28', and another, described in note 6,<sup>1</sup> is 12.39 meters distant in azimuth 237° 23'. Five oak trees, each marked with a triangular blaze, are at the following distances and azimuths from the station: 2.92 meters, 32°; 3.49 meters, 135°; 5.91 meters, 224°; 3.85 meters, 241°; and 6.53 meters, 270°.

*Bear Point* (Washington County, E. S., 1910).—On the low sandy beach at Bear Point, on the southwest side of St. Andrews Bay, about midway between the shore line and the edge of the woods. The station is marked according to note 4.<sup>1</sup> A reference mark, described in note 7,<sup>1</sup> is at the edge of the woods 21.38 meters from the station in azimuth 359° 20'. Two pine trees, each marked with a triangular blaze, are, respectively, 20.02 meters from the station in azimuth 2° 33' and 17.80 meters in azimuth 35° 56'.

*Courtney Point 3* (Washington County, E. S., 1910).—On Courtney Point, on the southwest side of St. Andrews Bay, just east of the edge of the woods. The station is marked according

<sup>1</sup> See pp. 61-62.



to note 3.<sup>1</sup> A reference mark, described in note 6,<sup>1</sup> is just within the woods 12.55 meters from the station in azimuth  $49^{\circ} 54'$ . An old dead oak is 14 meters from the station in azimuth  $309^{\circ} 27'$ , and an oak marked with a triangular blaze is 11.20 meters distant in azimuth  $108^{\circ} 34'$ .

*Red Fish Point 3* (Calhoun County, E. S., 1910).—On Red Fish Point, on the south side of the entrance to the east arm of St. Andrews Bay, on the northwest side of the point just north of a pond. The station is between two old cedar posts and is marked according to note 3.<sup>1</sup> A reference mark, described in note 5,<sup>1</sup> is 15.96 meters from the station in azimuth  $304^{\circ} 28'$ , and another, described in note 6,<sup>1</sup> is 18.57 meters distant in azimuth  $26^{\circ} 37'$ . A lone pine tree is 55 paces from the station in azimuth  $239^{\circ} 37'$ .

*Drumond* (Washington County, E. S., 1910).—On a rounded point on the north shore of St. Andrews Bay, a short distance east of the town of St. Andrews, on property laid out in town lots just east of the entrance to a large bayou. North of the station is the St. Andrews and Panama City road, and there is a wire fence along this road and along the shore. The station is marked according to note 3.<sup>1</sup> A reference mark, described in note 5,<sup>1</sup> is 6.02 meters from the station in azimuth  $168^{\circ} 18'$ , and another, described in note 6,<sup>1</sup> is 7.71 meters distant in azimuth  $284^{\circ} 47'$ . Three pine trees, each marked with a triangular blaze, are at the following distances and azimuths from the station: 6.55 meters,  $31^{\circ} 35'$ ; 14.25 meters,  $284^{\circ} 04'$ ; and 20.00 meters,  $297^{\circ} 44'$ .

*Davis Point 3* (Calhoun County, E. S., 1910).—This station is identical with the United States Engineers station *B* of 1908. It is south of Red Fish Point, on the west shore of the main part of St. Andrews Bay and is marked by a copper pin in the top of a concrete post 5 inches square. A reference mark, described in note 7,<sup>1</sup> is near an oak tree 12.66 meters from the station in azimuth  $238^{\circ} 36'$ , and another, described in note 6,<sup>1</sup> is near an oak tree 13.77 meters distant in azimuth  $309^{\circ} 28'$ . Two trees marked with triangular blazes are at the following distances and azimuths from the station: Oak, 13.45 meters,  $229^{\circ} 36'$ ; and palmetto, 15.98 meters,  $310^{\circ} 36'$ .

*Laguna 2* (Washington County, E. S., 1910).—This station is identical with the United States Engineers station *A* of 1908. It is on a narrow sand ridge on a prominent point on the southern shore of the main part of St. Andrews Bay, and is marked by a copper pin in the top of a concrete post 5 inches square.

*Spanish Shanty* (Washington County, E. S., 1910).—This station is identical with the United States Engineers station *C* of 1908. It is on Spanish Shanty Point, on the south shore of the lower part of St. Andrews Bay, near an oak tree about 15 meters from high-water mark. The station is marked by a copper pin in the top of a concrete post 5 inches square. A reference mark, described in note 5,<sup>1</sup> is 22.90 meters from the station in azimuth  $5^{\circ} 43'$ , and another, described in note 6,<sup>1</sup> is 11.64 meters distant in azimuth  $68^{\circ} 19'$ . An oak marked with a triangular blaze is 2.90 meters from the station in azimuth  $36^{\circ}$ .

*Middle* (Calhoun County, E. S., 1910).—On a sand ridge on the north shore of the lower part of St. Andrews Bay and about 12 meters from high-water mark. The land back of the station is marshy and most of the trees are palmetto. The station is marked according to note 3.<sup>1</sup> A reference mark, described in note 6,<sup>1</sup> is 11.80 meters from the station in azimuth  $238^{\circ} 02'$ . Three palmetto trees, marked with triangular blazes, are at the following distances and azimuths from the station: 7.08 meters,  $201^{\circ} 15'$ ; 8.86 meters,  $228^{\circ} 56'$ ; and 16.03 meters,  $276^{\circ} 45'$ .

*Bunkers Point* (Washington County, E. S., 1910).—On the point opposite Redfish Point on the north side of the entrance to the east arm of St. Andrews Bay, and just west of Bunkers Cove. The point is a sand ridge mostly covered with a low growth of oaks and palmettos and back of the ridge is a marsh and pond. The station is marked according to note 3.<sup>1</sup> A reference mark, described in note 5,<sup>1</sup> is 5.97 meters from the station in azimuth  $210^{\circ} 05'$ , and another, described in note 6,<sup>1</sup> is 9.71 meters distant in azimuth  $277^{\circ} 05'$ .

*Palmetto Point 2* (Calhoun County, E. S., 1910).—On the bluff on Palmetto Point on the south side of the east arm of St. Andrews Bay, and on the property of Mr. Mosher. The station is marked according to note 3.<sup>1</sup> A reference mark, described in note 5,<sup>1</sup> is close to a fence on

<sup>1</sup> See pp. 61-62.

the east and 5.75 meters from the station in azimuth  $287^{\circ} 57'$ . Another reference mark, described in note 6,<sup>1</sup> is 7.83 meters distant in azimuth  $2^{\circ} 12'$ . Two palmetto trees are, respectively, 8.75 meters from the station in azimuth  $352^{\circ} 59'$ , and 2.60 meters, in azimuth  $107^{\circ}$ .

*Town Point 2* (Washington County, E. S., 1910).—On Town Point, the first point east of Bunkers Cove and about one-half mile southwest of Watson Bayou. The station is marked according to note 3.<sup>1</sup> A small oak marked with a triangular blaze is 8.80 meters from the station in azimuth  $317^{\circ} 51'$ , and an oak marked with three blazes is 10.40 meters distant in azimuth  $178^{\circ} 15'$ .

*Military Point 2* (Calhoun County, E. S., 1910).—On a long sand-spit point on the east side of the east arm of St. Andrews Bay. The station is well in toward the main shore and is marked according to note 3.<sup>1</sup> A reference mark, described in note 6,<sup>1</sup> is near a fence corner 17.43 meters from the station in azimuth  $23^{\circ} 17'$ . Two oak trees marked with triangular blazes are, respectively, 10.58 meters from the station in azimuth  $4^{\circ} 50'$ , and 20.65 meters in azimuth  $29^{\circ} 07'$ .

*Watson Point 2* (Washington County, E. S., 1910).—On the point a little east of the entrance to Watson Bayou, in a clump of palmettos below the bluff. The station is marked according to note 3.<sup>1</sup> Two oaks marked with triangular blazes are, respectively, 7.96 meters from the station in azimuth  $90^{\circ} 51'$  and 3.93 meters in azimuth  $164^{\circ} 48'$ .

*Parker Point 2* (Washington County, E. S., 1910).—On the low land below the high bluff just opposite Ferry Point. The station is marked according to note 3.<sup>1</sup> A reference mark, described in note 5,<sup>1</sup> is on the bluff 35.55 meters, horizontal distance, from the station in azimuth  $207^{\circ} 46'$ , and another, described in note 6,<sup>1</sup> is on the bluff 44.76 meters, horizontal distance, from the station in azimuth  $271^{\circ} 13'$ . The distance between the reference marks is 42.95 meters. Three trees with triangular blazes are at the following distances and azimuths from the station: 1.70 meters,  $170^{\circ} 05'$ ; 31.85 meters,  $224^{\circ} 39'$ ; and 16.3 meters,  $265^{\circ} 25'$ .

*Ferry Point* (Calhoun County, E. S., 1910).—On the next point above Military Point on the same side of the Bay and well in toward the woods. The station is marked according to note 3.<sup>1</sup> A reference mark, described in note 5,<sup>1</sup> is 10.35 meters from the station in azimuth  $7^{\circ} 06'$ , and another, described in note 6,<sup>1</sup> is 5.02 meters distant in azimuth  $67^{\circ} 16'$ . A triple oak is 3.75 meters distant in azimuth  $56^{\circ}$ .

*Gabel 2* (Calhoun County, E. S., 1910).—On a point a little west of Pearl Bayou, on the sand slope back of the marsh. The station is marked according to note 3.<sup>1</sup> A reference mark, described in note 5,<sup>1</sup> is 6.66 meters from the station in azimuth  $46^{\circ} 12'$ , and another, described in note 6,<sup>1</sup> is 10.24 meters distant in azimuth  $158^{\circ} 06'$ . An oak tree marked with a triangular blaze is 18.90 meters from the station in azimuth  $166^{\circ} 51'$ , and the western one of two pine trees marked with old blazes is 15.3 meters distant in azimuth  $225^{\circ} 07'$ .

*Oyster east* (Washington County, E. S., 1910).—On the east side of Oyster Point. The station is marked according to note 3.<sup>1</sup> A reference mark, described in note 5,<sup>1</sup> is 12.85 meters from the station in azimuth  $31^{\circ} 10'$ , and another, described in note 6,<sup>1</sup> is 12.58 meters distant in azimuth  $206^{\circ} 11'$ . Two pine trees with old blazes, marked with new triangular blazes in 1910, are, respectively, 10.38 meters from the station in azimuth  $39^{\circ} 15'$  and 25.30 meters in azimuth  $226^{\circ} 05'$ .

*Oyster west* (Washington County, E. S., 1910).—Below the bluff on the west side of Oyster Point. The station is marked according to note 3.<sup>1</sup> A reference mark, described in note 6,<sup>1</sup> is on the bluff 20.99 meters from the station in azimuth  $203^{\circ} 58'$ , and another, described in note 5,<sup>1</sup> is on the bluff 15.52 meters distant in azimuth  $245^{\circ} 14'$ . The distance between the reference marks is 13.85 meters. An old oak tree below the bluff, marked with a triangular blaze, is 20.07 meters from the station in azimuth  $172^{\circ} 45'$ .

*Viola 2* (Calhoun County, E. S., 1910).—Below the bluff on the eastern shore of St. Andrews Bay, about 50 meters southwest from the wharf in front of the house belonging to Mrs. Pain and Miss Young. The station is marked according to note 3.<sup>1</sup> A reference mark, described in note 5,<sup>1</sup> is 6.07 meters from the station in azimuth  $334^{\circ} 33'$ , and another, described in note 6,<sup>1</sup>

<sup>1</sup> See pp. 61-62.



is 11.09 meters distant in azimuth  $41^{\circ} 37'$ . A large pine, marked with a triangular blaze, is 16.68 meters from the station in azimuth  $239^{\circ} 29'$ .

*Shoal Bayou 2* (Calhoun County, E. S., 1910).—On a point on the eastern shore of St. Andrews Bay northeast of a very shoal bayou. The station is marked according to note 3.<sup>1</sup> A reference mark, described in note 5,<sup>1</sup> is 7.82 meters from the station in azimuth  $289^{\circ} 55'$ , and another, described in note 6,<sup>1</sup> is 4.96 meters distant in azimuth  $349^{\circ} 49'$ . An oak tree, marked with a triangular blaze, is 5.22 meters from the station in azimuth  $333^{\circ} 40'$ .

*Dixon 2* (Washington County, E. S., 1910).—On the northern shore of St. Andrews Bay, on a sand ridge about 40 meters from high-water mark. The station is marked according to note 3.<sup>1</sup> A reference mark, described in note 6,<sup>1</sup> is 9.37 meters from the station in azimuth  $32^{\circ} 10'$ , and another, described in note 5,<sup>1</sup> is 9.95 meters distant in azimuth  $227^{\circ} 27'$ . A pine tree, marked with a triangular blaze, is 12.54 meters from the station in azimuth  $200^{\circ} 57'$ . Another pine tree, marked with an old blaze, is 19.88 meters distant in azimuth  $269^{\circ} 13'$ .

*East Point 2* (Calhoun County, E. S., 1910).—About 3 miles east of Oyster Point, on a shell bank on what is locally known both as East Point and as Shell Point. The station is about 15 meters from high-water mark and is marked according to note 3.<sup>1</sup> A reference mark, described in note 5,<sup>1</sup> is 9.01 meters from the station in azimuth  $26^{\circ} 48'$ , and another, described in note 6,<sup>1</sup> is 12.5 meters distant in azimuth  $69^{\circ} 40'$ . A small cedar, marked with a triangular blaze, is 10.97 meters from the station in azimuth  $9^{\circ} 31'$ .

*Didi Point 2* (Washington County, E. S., 1910).—On a sand ridge on the west side of Didi Point about 10 meters from high-water mark and just west of a marsh which occupies the middle of the point and which is drained by a small run emptying at the end of the point, about 40 meters south of the station. The station is marked according to note 3.<sup>1</sup> Two reference marks, described in note 5,<sup>1</sup> are, respectively, 9.95 meters from the station in azimuth  $179^{\circ} 59'$  and 35.60 meters in azimuth  $295^{\circ} 50'$ .

*Laird* (Washington County, E. S., 1910).—On the north shore of the east arm of St. Andrews Bay, just east of the pine woods to the west of Lairds Bayou and about 10 meters from high-water mark. The station is marked according to note 3.<sup>1</sup> A reference mark, described in note 6,<sup>1</sup> is 9.56 meters from the station in azimuth  $175^{\circ} 34'$ , and another, described in note 5,<sup>1</sup> is 5.61 meters distant in azimuth  $243^{\circ} 21'$ . Two pine trees, marked with triangular blazes, are, respectively, 10.80 meters from the station in azimuth  $118^{\circ} 12'$  and 11.86 meters in azimuth  $161^{\circ} 07'$ .

*Drogan 2* (Calhoun County, E. S., 1910).—On a narrow sand ridge at the end of a point of marsh opposite Didi Point and just west of a thick growth of yupon bushes. The station is marked according to note 3.<sup>1</sup>

#### SUPPLEMENTARY POINTS.

*E. B. P.* (Washington County, E. S., 1910).—On a sand hill on a narrow neck of land that separates a bight of St. Andrews Bay from the Gulf. The station is marked according to note 4.<sup>1</sup>

*North base (U. S. E.)* (Washington County, E. S., 1910).—On the west shore of the main part of St. Andrews Bay a short distance around the point southwest from Courtney Point 3, see p. 110. The station is marked by a copper pin in the top of a concrete post 5 inches square.

*South base (U. S. E.)* (Washington County, E. S., 1910).—On the west shore of the main part of St. Andrews Bay and on the north shore of Grand Lagoon. The station is marked by a copper pin in the top of a concrete post 5 inches square.

*St. Andrews, ice-plant stack* (Washington County, E. S., 1910).—The center of the stack of the ice-plant power house at St. Andrews.

*Fish* (Washington County, E. S., 1910).—The flagpole on the warehouse about halfway out on the ice-plant wharf at St. Andrews.

<sup>1</sup> See pp. 61-62

## CHOCTAWHATCHEE BAY TO ST. ANDREWS BAY.

## PRINCIPAL POINTS.

*Exit* (Santa Rosa County, H. G. O., 1871).—This station is in the shifting sand hills on the Gulf coast of Santa Rosa Island and was not searched for in 1910. It is marked according to note 1.<sup>1</sup> except that the reference posts are on a line with the station, two on the east side and two on the west.

*Stevens* (Santa Rosa County, H. G. O., 1871; 1910).—Lost.

*Choctawhatchee* (Santa Rosa County, H. G. O., 1871; 1910).—This station is marked according to note 1.<sup>1</sup> It was searched for without success in 1910.

*Garnier* (Walton County, H. G. O., 1871; 1910).—This station is marked according to note 1.<sup>1</sup> It was searched for without success in 1910.

*Cobbs Point* (Washington County, H. G. O., 1872; 1910).—This station is marked according to note 1.<sup>1</sup> It was searched for without success in 1910.

*Tripod* (Walton County, H. G. O., 1872; 1910).—Lost.

*White Point* (Walton County, H. G. O., 1872; 1910).—This station is marked according to note 1.<sup>1</sup> It was searched for without success in 1910.

*Shaker* (Washington County, H. G. O., 1872; 1910).—This station is marked according to note 1.<sup>1</sup> It was searched for without success in 1910.

*Stake Point* (Walton County, H. G. O., 1872; 1910).—This station is marked according to note 1.<sup>1</sup> It was searched for without success in 1910.

*Four Mile Point* (Washington County, H. G. O., 1872; 1910).—This station is marked according to note 1.<sup>1</sup> It was searched for without success in 1910.

*Blunt* (Walton County, H. G. O., 1872; 1910).—This station is marked according to note 1.<sup>1</sup> It was searched for without success in 1910.

*Live Oak Point* (Washington County, H. G. O., 1872; 1910).—This station is marked according to note 1.<sup>1</sup> It was searched for without success in 1910.

*Alaqua* (Walton County, H. G. O., 1872; 1910).—On Alaqua Point on the north shore of Choctawhatchee Bay. The station is marked by a stone monument inscribed on the top with a cross and the letters "U. S. C. S." It could not be recovered in 1910.

*La Grange* (Walton County, H. G. O., 1872; 1910).—On the north shore of Choctawhatchee Bay, about  $1\frac{1}{2}$  miles south of the mouth of La Grange Bayou. The station is on a narrow point of hard land extending eastward into the marsh and near a log canal which extends from near the station through the marsh southward to the shore of the bay. The station is marked by a standard disk station mark in the top of a 6-inch tile which is filled and surrounded with concrete. The underground mark is a copper nail in a brick surrounded by concrete  $2\frac{1}{2}$  feet below the ground. A reference mark, a standard cap station mark screwed to the top of a 3-inch iron pipe 4 feet long which projects 1 foot above the ground, is 27.329 meters from the station in azimuth  $198^{\circ} 10'$ . Two live oak trees, each marked with a blaze and four iron nails, are at the following distances and azimuths from the station: 33.97 meters,  $134^{\circ} 23'$ ; and 26.46 meters,  $249^{\circ} 11'$ . The trees were blazed and the reference mark and the surface mark at the station were set in 1910.

*Alligator 2* (Washington County, H. G. O., 1872).—On Alligator Point, on the south shore of Choctawhatchee Bay. The station is marked by a nail in the stump of a pine tree. The stump is about 2 feet high and the nail is a little south of the center.

*Criglar* (Washington County, H. G. O., 1872; 1910).—On the south shore of Choctawhatchee Bay, about 4 miles southeast of Alligator Point, on rising ground about 4 meters east of a small creek. The station is marked by a stone monument inscribed on the top with a cross and the letters "U. S. C. S." A reference mark, consisting of a standard cap station mark screwed to the top of a 3-inch iron pipe which projects 1 foot above the ground, is 13.63 meters from the station in azimuth  $122^{\circ} 18'$ . Three pine trees, with triangular blazes with a nail at the center and at each vertex of the triangle, are at the following distances and azimuths from the station:

<sup>1</sup> See pp. 61-62.



9.16 meters,  $52^{\circ} 16'$ ; 8.14 meters,  $159^{\circ} 29'$ ; and 2.80 meters,  $186^{\circ} 52'$ . The trees were blazed and the reference mark set in 1910.

*Blue Mountain* (Washington County, F. W. P., 1872).—On the top of a high hill known as Blue Mountain, about one-half mile inland from the Gulf coast. The hill is nearly devoid of vegetation in the immediate vicinity of the station. There is a small pond at the foot of the hill on the northern side. The station is marked by a copper nail in a plug in the top of an iron screw pile.

*High* (Washington County, F. W. P., 1872).—On the top of a very prominent hill which is close to the water line and is covered with a thick growth of scrub oak and chaparral. The station is marked by a copper nail in a plug in the top of an iron screw pile.

*I* (Washington County, F. W. P., 1872).—On a small grass-covered sand knoll close to the level sand beach. The station is marked by a copper tack in a plug in the top of an iron screw pile.

*G* (Washington County, F. W. P., 1872).—On a small knoll near the level sand beach a short distance northwest of Pass Icola. The station is marked by a copper nail in the top of a 4 by 4 inch pine stub.

*E* (Washington County, F. W. P., 1872).—On a small knoll near the level sand beach and about midway between two small runs. The station is marked by a copper nail in the top of a 4 by 4 inch pine stub.

*C* (Washington County, F. W. P., 1872).—On a small knoll near the level sand beach about 300 meters southeast of the mouth of a small creek which is the outlet for a small fresh-water pond. The station is marked by a copper nail in the top of a 4 by 4 inch pine stub.

*Alligator Point 2* (Washington County, G. H. R., 1910).—On Alligator Point, on the south side of the east end of Choctawhatchee Bay, on a narrow sand ridge about 100 meters west of the northeastern extremity of the point, 4 paces from mean high-water mark and 2 paces from the edge of the marsh to the south. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 23.176 meters from the station in azimuth  $94^{\circ} 07'$ .

*Alaqua Point 2* (Walton County, G. H. R., 1910).—On Alaqua Point, on the north shore of Choctawhatchee Bay, 4 paces from mean high-water mark, 45 paces from the mouth of a creek to the west, 17 paces from the edge of a marsh to the north, and about 150 meters from the edge of a dense woods to the east. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 19.86 meters from the station in azimuth  $240^{\circ} 03'$ . Two live oak trees, each marked with a triangular blaze with a nail at the center and each vertex, are, respectively, 3.71 meters from the station in azimuth  $170^{\circ} 45'$  and 14.69 meters in azimuth  $219^{\circ} 40'$ .

*Live Oak Point 2* (Washington County, G. H. R., 1910).—On Live Oak Point, on the south shore of Choctawhatchee Bay, near the eastern end of a narrow level sand ridge surrounded by marsh, 7 paces from mean high-water mark to the north and 17 paces from mean high-water mark to the west. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 36.565 meters from the station in azimuth  $67^{\circ} 09'$ . Two live oak trees, each marked with a triangular blaze with a nail at the center and each vertex, are, respectively, 19.74 meters from the station in azimuth  $69^{\circ} 02'$  and 45.42 meters in azimuth  $73^{\circ} 08'$ .

*Blunt 2* (Walton County, G. H. R., 1910).—On Hammock Point, on the north side of Choctawhatchee Bay, on the sand beach 14 paces from high-water mark. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 42.74 meters from the station in azimuth  $168^{\circ} 09'$ . A pine tree and a magnolia tree, each marked with a triangular blaze with a nail at the center and each vertex, are, respectively, 39.50 meters from the station in azimuth  $85^{\circ} 57'$  and 5.61 meters in azimuth  $108^{\circ} 23'$ . A house is about 250 meters north  $63^{\circ}$  west from the station.

*Four Mile Point 2* (Washington County, G. H. R., 1910).—On Four Mile Point, on the south side of Choctawhatchee Bay, 13 paces from the edge of the bank to the north and 20 paces from mean high-water mark to the west. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 27.286 meters from the station in azimuth  $339^{\circ} 53'$ . Two live

<sup>1</sup> See pp. 61-62.



oak trees, each marked with a triangular blaze with a nail at the center and each vertex, are, respectively, 27 meters from the station in azimuth  $291^{\circ} 38'$  and 30.38 meters in azimuth  $18^{\circ} 44'$ .

*Stake Point 2* (Walton County, G. H. R., 1910).—On Stake Point on the north side of Choctawhatchee Bay, 8 paces from mean high-water mark and 12 paces from the edge of the thick woods to the north. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 28.945 meters from the station in azimuth  $173^{\circ} 38'$ . A lone pine tree near the western edge of the point and a live oak on the edge of the woods, each marked with a triangular blaze with a nail at the center and each vertex, are, respectively, 33.92 meters from the station in azimuth  $90^{\circ} 06'$  and 20.76 meters in azimuth  $224^{\circ} 09'$ .

*Shaker 2* (Washington County, G. H. R., 1910).—Near the eastern side of Piney Point on the south side of Choctawhatchee Bay, 8 paces from mean high-water mark. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 28.19 meters from the station in azimuth  $34^{\circ} 58'$ . Two pine trees, each marked with a triangular blaze with a nail at each vertex, are, respectively, 67.06 meters south  $1^{\circ} 12'$  west from the station and 27.19 meters south  $46^{\circ} 14'$  west.

*White Point 2* (Walton County, G. H. R., 1910).—On White Point on the north side of Choctawhatchee Bay, 100 paces from the extremity of the point to the south, 58 paces from mean high-water mark to the east and 52 paces from mean high-water mark to the west. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 31.24 meters from the station in azimuth  $192^{\circ} 21'$ . A live oak scrub and a pine scrub, each marked with a triangular blaze with a nail at the center and each vortex, are, respectively, 6.16 meters from the station in azimuth  $173^{\circ} 41'$  and 22.82 meters in azimuth  $200^{\circ} 02'$ .

*Cobbs Point 2* (Washington County, G. H. R., 1910).—On Cobbs Point, on the south shore of Choctawhatchee Bay, 37 paces from mean high-water mark to the north and about the same distance from mean high-water mark to the east and to the west. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 42.83 meters from the station in azimuth  $20^{\circ} 03'$ . Two pine trees, each marked with a triangular blaze and three nails, are, respectively, 72.88 meters south  $68^{\circ}$  east and 128.36 meters south  $32^{\circ}$  west from the station.

*Tripod 2* (Walton County, G. H. R., 1910).—On the north shore of Choctawhatchee Bay, on a bank 5 feet high, 20 paces from mean high-water mark and 12 paces from the edge of a marsh to the north. There is a large pond north of the station and the mouth of a small creek is 60 paces to the west. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 26.28 meters from the station in azimuth  $105^{\circ} 17'$ . Two magnolia trees, each marked with a triangular blaze with a nail at the center and each vertex, are, respectively, 5.33 meters south  $27^{\circ}$  west and 28.56 meters north  $84^{\circ}$  west from the station.

*Garnier 2* (Walton County, G. H. R., 1910).—Near the eastern side of Black Point on the north side of the western end of Choctawhatchee Bay, 100 paces from mean high-water mark to the east, 75 paces from mean high-water mark to the south, and 40 paces from the edge of a large pond to the northwest. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is on the bank of the pond 33.10 meters from the station in azimuth  $125^{\circ} 42'$ . Two pine trees, each marked with a triangular blaze and three nails, are, respectively, 39.02 meters north  $12^{\circ}$  west and 11.30 meters south  $80^{\circ}$  west from the station.

*Choctawhatchee 2* (Santa Rosa County, G. H. R., 1910).—On a sand hill on the Gulf shore of Santa Rosa Island, about 5 miles west of the eastern end of the island. The hills in this vicinity are all about the same height. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is on level ground 75.08 meters (horizontal distance) from the station in azimuth  $182^{\circ} 51'$ .

*Stevens 2* (Santa Rosa County, G. H. R., 1910).—On the prominent point on the north side of the junction of the Narrows with Choctawhatchee Bay, just east of a large bayou and 33 paces from the high-water mark to the east and 98 paces from high-water mark to the south. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is near the edge of the bayou 42.48 meters from the station in azimuth  $133^{\circ} 29'$ . Three trees, each

<sup>1</sup> See pp. 61-62.



marked with a blaze and three nails in the form of a triangle, are at the following distances from the station: 29.02 meters N.  $20^{\circ}$  W., 43.54 meters N.  $60^{\circ}$  W., and 77.24 meters, S.  $77^{\circ}$  W.

*Santa Rosa east base* (Santa Rosa County, G. H. R., 1910).—On the north shore of Santa Rosa Island, about  $4\frac{1}{4}$  miles west of the eastern end of the island, on a small sand knoll 10 feet high 125 paces from the shore and about 100 meters west of the western edge of the pine timber. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 32.37 meters from the station in azimuth  $25^{\circ} 13'$ .

*Santa Rosa west base* (Santa Rosa County, G. H. R., 1910).—On a small sand hill 10 feet high on Santa Rosa Island, about twice as far from Choctawhatchee Bay as from the Gulf. There is a ridge of sand hills 100 meters south of the station and another 150 meters north. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 32.84 meters, inclined distance, from the station in azimuth  $207^{\circ} 18'$ .

*Exit 2* (Santa Rosa County, G. H. R., 1910).—On Santa Rosa Island, on a prominent sand hill, the highest in the vicinity, almost due south of a point midway between the two range beacons in the Narrows and about 150 meters from the Gulf shore. There are some high sand hills about 125 meters north of the station, but the ground to the eastward is level. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is on level ground 44.72 meters, inclined distance, from the station in azimuth  $351^{\circ} 50'$ .

*Lane 2* (Washington County, G. H. R., 1910).—On the highest and most prominent sand hill on the western end of the peninsula between Choctawhatchee Bay and East Pass, about 125 meters from the shore and about 150 meters northwest of a house. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 38.30 meters, inclined distance, from the station in azimuth  $347^{\circ} 27'$ .

*East Pass 2* (Santa Rosa County, G. H. R., 1910).—On the last prominent sand hill on the east end of Santa Rosa Island, quite close to the Gulf and almost due south of the end of the peninsula on the north side of East Pass. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 53.35 meters, inclined distance, from the station in azimuth  $162^{\circ} 41'$ .

*Bar* (Santa Rosa County, G. H. R., 1910).—On a sand spit known as Norriego Point on the south side of East Pass. The station is in shifting sand 12 paces from high-water mark and is marked by a 2 by 4 inch stake. A reference mark, described in note 13,<sup>1</sup> is 92.08 meters from the station in azimuth  $190^{\circ} 05'$ .

*Saddle* (Santa Rosa County, G. H. R., 1910).—On the highest point of a sand bluff about 45 feet high on the north side of East Pass, almost due north of the end of the sand spit on the south side of the Pass. The station is 7 meters back from the edge of the bluff and is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is on a sand ridge 35.25 meters, inclined distance, from the station in azimuth  $147^{\circ} 38'$ .

#### SANTA ROSA SOUND.

##### PRINCIPAL POINTS.

*Entrance* (Santa Rosa County, H. G. O., 1870; 1910).—On the north shore of Santa Rosa Island, at the western end of the sound. The station is marked according to note 1.<sup>1</sup> It was searched for without success in 1910.

*Deer Point 2* (Santa Rosa County, H. G. O., 1870; 1890).—Lost.

*Sabine Hill* (Santa Rosa County, H. G. O., 1870; 1910).—On a sand hill on the south shore of Little Sabine Bay, near the western end of the bay. The station is marked according to note 1<sup>1</sup> except that the underground mark is a cross in the lead stopper of a large iron powder canister which is filled with sand. The station was searched for without success in 1910.

*Grassy Point* (Santa Rosa County, H. G. O., 1870; 1910).—On Grassy Point, a prominent point on the mainland shore of Santa Rosa Sound. The station is marked according to note 1.<sup>1</sup> It was searched for without success in 1910.

<sup>1</sup> See pp. 61-62.

*Stumps* (Santa Rosa County, H. G. O., 1871; 1910).—This station has been destroyed.

*Sharp* (Santa Rosa County, H. G. O., 1871; 1910).—This station is on the shifting sand hills on the Gulf coast of Santa Rosa Island and could not be recovered in 1910. The station is marked according to note 1.<sup>1</sup>

*Range* (Santa Rosa County, H. G. O., 1871; 1910).—This station is 3.087 meters from *Range 2* (see p. 120). It is marked by a hole in the upper end of a brick 16 inches below the ground.

*Creek* (Santa Rosa County, H. G. O., 1871; 1910).—Lost.

*Marsh* (Santa Rosa County, H. G. O., 1871; 1910).—This station has been destroyed.

*Bower* (Santa Rosa County, H. G. O., 1871; 1910).—On a sand hill just back of a prominent point on the north side of Santa Rosa Island. The station was originally marked according to note 1,<sup>1</sup> but was re-marked in 1910 according to note 12.<sup>1</sup> The eastern end of the long neck of land that forms the end of the point bears N. 5° E. from the station, and the eastern end of a foot-shaped projection on the eastern side of the point bears N. 38° E.

*Sand Hill* (Santa Rosa County, H. G. O., 1871; 1910).—On the eastern end of a snake-shaped sand hill on Santa Rosa Island. The station is marked according to note 1,<sup>1</sup> except that there are no reference stakes. It was searched for without success in 1910.

*Ranch* (Santa Rosa County, H. G. O., 1871; 1910).—Lost.

*Agassiz* (Santa Rosa County, H. G. O., 1871; 1910).—Lost.

*Two Points* (Santa Rosa County, H. G. O., 1871; 1910).—On the western one of two points near together on the mainland shore of Santa Rosa Sound. The station is marked according to note 1.<sup>1</sup> It could not be recovered in 1910.

*Peak* (Santa Rosa County, H. G. O., 1871; 1910).—Lost.

*Deserted* (Santa Rosa County, H. G. O., 1871; 1910).—Lost.

*Cove* (Santa Rosa County, H. G. O., 1871; 1910).—This station is in the shifting sand hills on the Gulf coast of Santa Rosa Island and could not be recovered in 1910. It is marked according to note 1.<sup>1</sup>

*Big River* (Santa Rosa County, H. G. O., 1871; 1910).—Lost.

*John* (Santa Rosa County, H. G. O., 1871; 1910).—In the shifting sand hills on the Gulf coast of Santa Rosa Island. The station is marked according to note 1.<sup>1</sup> It could not be recovered in 1910.

*Bluff* (Santa Rosa County, H. G. O., 1871; 1910).—On a small white bluff on the mainland shore of Santa Rosa Sound. The station is marked according to note 1.<sup>1</sup> It was searched for without success in 1910.

*Eagle's Nest* (Santa Rosa County, H. G. O., 1871; 1910).—On a prominent point on the mainland shore of Santa Rosa Sound. The station is marked according to note 1.<sup>1</sup> It could not be recovered in 1910.

*Tuck* (Santa Rosa County, H. G. O., 1871; 1910).—In the shifting sand hills on the Gulf coast of Santa Rosa Island. The station is marked according to note 1.<sup>1</sup> It could not be recovered in 1910.

*Long* (Santa Rosa County, H. G. O., 1871; 1910).—Near the end of a prominent point, known as Long Pritchard Point, on the mainland side of Santa Rosa Sound. The station is marked according to note 1,<sup>1</sup> except that the underground brick is in two parts, one above the other. It was searched for without success in 1910.

*Beach* (Santa Rosa County, H. G. O., 1871; 1910).—In the shifting sand hills on the Gulf coast of Santa Rosa Island. The station is marked according to note 1.<sup>1</sup> It could not be recovered in 1910.

*Narrows* (Santa Rosa County, H. G. O., 1871; 1910).—On a low sand point of the mainland at the western end of the Narrows. The station is marked according to note 1.<sup>1</sup> It could not be recovered in 1910.

*Fender* (Santa Rosa County, H. G. O., 1871; 1910).—In the shifting sand hills on the Gulf coast of Santa Rosa Island. The station is marked by an iron spike in the top of an old ship

<sup>1</sup> See pp. 61-62.



fender, 18 inches in diameter and 5 feet long, which projects 2 feet above the sand. It could not be recovered in 1910.

*Field* (Santa Rosa County, H. G. O., 1871; 1910).—On a point on the mainland shore of the Narrows. The station is marked according to note 1.<sup>1</sup> It was searched for without success in 1910.

*Surf* (Santa Rosa County, H. G. O., 1871).—This station is in the shifting sand hills on the Gulf coast of Santa Rosa Island and was not searched for in 1910. It is marked according to note 1.<sup>1</sup>

*Kitrel* (Santa Rosa County, H. G. O., 1871; 1910).—On a point on the mainland shore of the Narrows. The station is marked according to note 1.<sup>1</sup> It was searched for without success in 1910.

*Cut* (Santa Rosa County, H. G. O., 1871; 1910).—In the shifting sand hills on the Gulf coast of Santa Rosa Island. The station is marked according to note 1.<sup>1</sup> It could not be recovered in 1910.

*Rogers* (Santa Rosa County, H. G. O., 1871; 1910).—This station has been destroyed.

*Pirate* (Santa Rosa County, H. G. O., 1871).—This station is in the shifting sand hills on the Gulf coast of Santa Rosa Island and was not searched for in 1910. The station is marked according to note 1.<sup>1</sup>

*Davis* (Santa Rosa County, H. G. O., 1871; 1910).—Lost.

*Small* (Santa Rosa County, H. G. O., 1871).—This station is in the shifting sand hills on the Gulf coast of Santa Rosa Island and was not searched for in 1910. The station is marked according to note 1.<sup>1</sup>

*Payne* (Santa Rosa County, H. G. O., 1871).—Among tall pine trees near a small bight on the mainland shore of the Narrows and just west of Payne's house. The station is marked according to note 1,<sup>1</sup> except that there is no underground mark. Three blazed pine trees are near the station. The station was not searched for in 1910, as it was thought impossible of recovery.

*Gulf* (Santa Rosa County, H. G. O., 1871; 1910).—In the shifting sand hills on the Gulf shore of Santa Rosa Island. The station is marked according to note 1.<sup>1</sup> It could not be recovered in 1910.

*Burlison* (Santa Rosa County, H. G. O., 1871).—On a small plot of hard land on the mainland shore of the Narrows, about 1 mile east of Choctawhatchee Bay. The station is marked according to note 1.<sup>1</sup>

*Entrance 2* (Santa Rosa County, G. H. R., 1910).—Near the eastern side of a sand point on the north shore of Santa Rosa Island, 23 paces from mean high-water mark. The station is marked according to note 12,<sup>1</sup> except that there is no underground mark. A reference mark, described in note 13,<sup>1</sup> is 37.54 meters from the station in azimuth  $13^{\circ} 51'$ .

*Grassy Point 2* (Santa Rosa County, G. H. R., 1910).—On a prominent point covered with grass and scattering trees and known as Grassy Point, on the north shore near the western end of Santa Rosa Sound. The station is marked according to note 12,<sup>1</sup> except that there is no underground mark. A reference mark, described in note 13,<sup>1</sup> is 25.56 meters from the station in azimuth  $280^{\circ} 31'$ . One pine tree and two live oak trees, each marked with a blaze and three copper nails in the form of a triangle, are at the following respective distances from the station: 34.84 meters N.  $88^{\circ}$  W., 53.89 meters N.  $35^{\circ}$  E., and 23.93 meters S.  $55^{\circ}$  E.

*Quarantine* (Santa Rosa County, G. H. R., 1910).—On made land near the northeastern end of the quarantine station grounds, on the north shore of Santa Rosa Island, 18 paces from the water's edge to the north, 95 paces from the water's edge to the east, and 34.3 meters southwest from the corner of a house. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 24.95 meters from the station in azimuth  $271^{\circ} 36'$ .

*Bald* (Santa Rosa County, G. H. R., 1910).—On the north shore of Santa Rosa Sound, 35 paces east of the edge of a hill known locally as Bald Hill, 115 paces east of the center of the hill,

<sup>1</sup> See pp. 61-62.

8 paces from mean high-water mark to the south, and 100 paces west of where the shore line turns to the northward. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is on the slope of the hill, 38.57 meters from the station in azimuth  $133^{\circ} 13'$ . A pine tree and a live oak tree, each marked with a blaze and three copper nails in the form of a triangle, are, respectively, 17.53 meters N.  $48^{\circ}$  W. and 42.15 meters due west from the station.

*Sharp Point* (Santa Rosa County, G. H. R., 1910).—On a prominent timbered point on the north shore of Santa Rosa Island 2 miles east of Sabine Bay, 40 paces from mean high-water mark to the north and 65 paces from mean high-water mark to the west. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 27.70 meters from the station in azimuth  $341^{\circ} 33'$ . Three pine trees, each marked with a blaze and three copper nails in the form of a triangle, are at the following distances from the station: 12.10 meters S.  $73^{\circ}$  E., 20.42 meters S.  $41^{\circ}$  E., and 34.38 meters N.  $43^{\circ}$  W.

*Creek 2* (Santa Rosa County, G. H. R., 1910).—On the north shore of Santa Rosa Sound north about  $20^{\circ}$  west from Range Point, 90 paces east of a creek and 12 paces from mean high-water mark. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 38.22 meters from the station in azimuth  $158^{\circ} 39'$ . Two pine trees, each marked with a blaze and three copper nails in the form of a triangle, are, respectively, 37.37 meters N.  $65^{\circ}$  E. and 21 meters N.  $5^{\circ}$  W. from the station.

*Range 2* (Santa Rosa County, G. H. R., 1910).—On a prominent sand hill covered with small brush on the north and northeast slopes 150 paces from the north shore of Santa Rosa Island, near the cove on the west side of Range Point. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is on level ground 25.60 meters, inclined distance, from the station in azimuth  $191^{\circ} 59'$ . Station *Range* (see p. 118) is 3.087 meters distant in azimuth  $255^{\circ} 24'$ .

*Marsh 2* (Santa Rosa County, G. H. R., 1910).—On the north shore of Santa Rosa Sound N.  $28^{\circ}$  W. from Bower Point, 27 paces from high-water mark to the south and 28 paces from high-water mark to the east. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 27.95 meters from the station in azimuth  $140^{\circ} 18'$ . Three pine trees, each marked with a blaze and three copper nails in the form of a triangle, are at the following distances from the station: 23.84 meters N.  $58^{\circ}$  E., 30.72 meters N.  $48^{\circ}$  W., and 24.11 meters S.  $80^{\circ}$  W.

*Sand Hill 2* (Santa Rosa County, G. H. R., 1910).—On the most prominent of several sand hills on Santa Rosa Island about 3 miles east of Bowers Point and a little nearer the south shore of the island than the north shore. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is on level ground 23.21 meters, inclined distance, from the station in azimuth  $142^{\circ} 28'$ .

*Ranch 2* (Santa Rosa County, G. H. R., 1910).—On the north shore of Santa Rosa Sound 25 paces from high-water mark. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 18.43 meters from the station in azimuth  $166^{\circ} 40'$ . Two live oak trees, each marked with a blaze and three iron nails in the form of a triangle, are, respectively, 21 meters N.  $65^{\circ}$  E. and 15.18 meters due west from the station.

*Agassiz 2* (Santa Rosa County, G. H. R., 1910).—On a very prominent, conspicuous sand hill on Santa Rosa Island about midway between the Gulf and Santa Rosa Sound. The top of the hill is a narrow circular ridge covered with vegetation inclosing a large deep hollow. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is in the hollow mentioned above 21.32 meters, inclined distance, from the station in azimuth  $305^{\circ} 04'$ .

*Two Points 2* (Santa Rosa County, G. H. R., 1910).—On the north shore of Santa Rosa Sound, 80 paces east of a small creek and 7 paces from mean high-water mark. The station is marked according to note 12.<sup>1</sup> A reference mark described in note 13,<sup>1</sup> is 30.42 meters from the station in azimuth  $202^{\circ} 48'$ . A live oak tree and a magnolia tree, each marked with a blaze and three iron nails in the form of a triangle, are, respectively, 15.36 meters N.  $55^{\circ}$  W. and 22.62 meters N.  $20^{\circ}$  E.

<sup>1</sup> See pp. 61-62.



*Deserted 2* (Santa Rosa County, G. H. R., 1910).—On the north shore of Santa Rosa Sound about  $1\frac{3}{4}$  miles west of Williams Creek and about 150 meters west of a farmhouse which is about 200 meters back from the shore. The station is just back of some small live oak trees, about 3 meters from high-water mark, and is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 39.92 meters from the station in azimuth  $169^{\circ} 58'$ .

*Peak 2* (Santa Rosa County, G. H. R., 1910).—On a prominent sand hill on the Gulf shore of Santa Rosa Island opposite a large cove on the north side of the island formed by two rather prominent points. The western point is covered with timber and the eastern edge of this timber is north and a little west of the station. There are some small sharp-pointed sand hills to the westward of the station, but no high hills to the eastward. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is on level ground 57.19 meters, inclined distance, from the station in azimuth  $126^{\circ} 04'$ .

*Cove 2* (Santa Rosa County, G. H. R., 1910).—On a lone sand hill near the Gulf shore of Santa Rosa Island, nearly due south from the mouth of Williams Creek. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is on a small knoll 22.62 meters, inclined distance, from the station in azimuth  $2^{\circ} 35'$ . A clump of pine trees on the point of an island three-fourths mile distant is north  $85^{\circ}$  west from the station.

*Big River 2* (Santa Rosa County, G. H. R., 1910).—On a timbered point on the north shore of Santa Rosa Sound about 150 meters east of Williams Creek, about 300 meters west of the Woodrack boat landing, and 20 paces from mean high-water mark. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 28.15 meters from the station in azimuth  $161^{\circ} 24'$ . Two pine trees, each marked with a blaze and three iron nails in the form of a triangle, are, respectively, 10.79 meters N.  $15^{\circ}$  W. and 24.38 meters N.  $86^{\circ}$  W.

*John 2* (Santa Rosa County, G. H. R., 1910).—On a sand hill covered with shrubs, near the north side of Santa Rosa Island. The hill is the most prominent one in the vicinity and its north edge is 10 paces from mean high-water mark. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is on a small rise of ground near the base of the hill 48.54 meters, inclined distance, from the station in azimuth  $318^{\circ} 48'$ . The outer edge of the timber on the point one-half mile to the eastward is N.  $65^{\circ}$  E. from the station and the end of the point five-eighths mile to the westward is S.  $81^{\circ}$  W.

*Bluff 2* (Santa Rosa County, G. H. R., 1910).—On the north shore of Santa Rosa Sound, about 2 miles east of Williams Creek and 15 paces from mean high-water mark. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 32.24 meters from the station in azimuth  $209^{\circ} 22'$ . Two pine trees, each marked with a blaze and three iron nails in the form of a triangle, are respectively, 26.06 meters N.  $32^{\circ}$  E. and 21 meters N.  $77^{\circ}$  W. from the station.

*Eagles Nest 2* (Santa Rosa County, G. H. R., 1910).—On a prominent point on the north shore of Santa Rosa Sound, 63 paces from mean high-water mark to the eastward and 58 paces from mean high-water mark to the westward. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 25.52 meters from the station in azimuth  $151^{\circ} 17'$ . Two pine trees, each marked with a blaze and three iron nails in the form of a triangle, are respectively 4.76 meters N.  $32^{\circ}$  E. and 6.22 meters S.  $4^{\circ}$  E. from the station.

*Tuck 2* (Santa Rosa County, G. H. R., 1910).—On a sand ridge on the Gulf shore of Santa Rosa Island. To the eastward the ridge is about the same height as at the station, but to the westward there is an abrupt drop of about 8 feet. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is on level ground 52.01 meters inclined distance from the station in azimuth  $178^{\circ} 03'$ .

*Long 2* (Santa Rosa County, G. H. R., 1910).—On a prominent point on the north side of Santa Rosa Sound, about 2 miles west of the western end of the Narrows, 77 paces from the edge of the bank to the south, 45 paces from mean high-water mark to the east, and 40 paces from mean high-water mark to the west. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 38.73 meters from the station in azimuth  $172^{\circ} 04'$ . Two pine

<sup>1</sup> See pp. 61-62.



trees, each marked with a blaze and three copper nails in the form of a triangle are respectively 21.73 meters S. 25° E. and 14.60 meters N. 47° W. from the station.

*Beach 2* (Santa Rosa County, G. H. R., 1910).—On a sand ridge on the Gulf shore of Santa Rosa Island. The ridge is lower to the eastward, but to the westward are two sand hills higher than the station at distances of 30 meters and 60 meters, respectively. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is on level ground 52.76 meters, inclined distance, from the station in azimuth 128° 59'.

*Narrows 2* (Santa Rosa County, C. H. R., 1910).—On the north shore of the western end of the Narrows 12 paces from mean high-water mark. The shore line in this vicinity is nearly straight. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 26.07 meters from the station in azimuth 80° 14'.

*Fender 2* (Santa Rosa County, G. H. R., 1910).—About 2 meters west of the eastern end of a sand ridge on the Gulf shore of Santa Rosa Island and about 300 meters from the nearest sand hills to the eastward. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is on a spur of the ridge 31.42 meters from the station in azimuth 136° 52'.

*Field 2* (Santa Rosa County, G. H. R., 1910).—On the north shore of the Narrows, about 160 meters east of the mouth of a small creek, about 275 meters east of a house and 20 paces from mean high-water mark. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 27.42 meters from the station in azimuth 172° 14'. Two pine trees, each marked with a blaze and three nails in the form of a triangle, are, respectively, 9.63 meters S. 5° W. and 20.06 meters N. 73° W. from the station.

*Surf 2* (Santa Rosa County, G. H. R., 1910).—On a sand ridge on the Gulf shore of Santa Rosa Island. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is on level ground, 54.62 meters inclined distance, from the station in azimuth 172° 27'.

*Kitrel 2* (Santa Rosa County, G. H. R., 1910).—On the north shore of the Narrows, about 2½ miles west of Mary Esther post office, and 7 paces from high-water mark. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 26.76 meters from the station in azimuth 171° 34'. Two live oak trees, each marked with a blaze and three nails in the form of a triangle, are, respectively, 7.10 meters N. 28° W. and 5.09 meters N. 65° W. from the station. The southeast corner of a house is 55.01 meters N. 34° W. from the station.

*Cut 2* (Santa Rosa County, G. H. R., 1910).—On the highest point of a sand ridge on Santa Rosa Island, about midway between the Gulf and Santa Rosa Sound and east and southeast, respectively, of two clumps of small pine trees. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 46.80 meters, inclined distance, from the station, in azimuth 351° 20'.

*Rogers 2* (Santa Rosa County, G. H. R., 1910).—On the north shore of the Narrows in the inclosed field just east of the house in which the Mary Esther post office is located, 6 paces from high-water mark and 3 paces north of the fence along the shore. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 30.37 meters from the station in azimuth 158° 23'. Two live oak trees, each marked with a blaze and three nails in the form of a triangle, are, respectively, 23.40 meters N. 33° W. and 36.94 meters N. 18° E. from the station. The southeast corner of the house mentioned above is 29.17 meters N. 48° W. from the station.

*Pirate 2* (Santa Rosa County, G. H. R., 1910).—On a sand ridge on the Gulf shore of Santa Rosa Island, about one-half mile east of Pirates Cove. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is on level ground 68.41 meters, inclined distance, from the station in azimuth 184° 56'. The end of Pirates Cove Point is N. 65° W. from the station.

*Davis 2* (Santa Rosa County, G. H. R., 1910).—On a point covered with scrubs and scattering pines on the north side of the Narrows, about one mile west of Camp Walton and about 150 meters east of a thick clump of pine trees. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 19.67 meters from the station in azimuth 186° 05'.

<sup>1</sup> See pp. 61-62.



Two pine trees each marked with a blaze and three copper nails in the form of a triangle, are, respectively, 26.37 meters N.  $2^{\circ}$  W. and 21.22 meters N.  $15^{\circ}$  W. from the station. The end of Pirates Cove Point is S.  $85^{\circ}$  W. from the station.

*Small 2* (Santa Rosa County, G. H. R., 1910).—On a lone sand hill on the Gulf shore of Santa Rosa Island, about 400 meters from the nearest sand hills to the westward, and about 150 meters from the nearest sand hills to the eastward. The station is marked according to note 12.<sup>1</sup> A reference mark described in note 13,<sup>1</sup> is 48.38 meters, inclined distance, from the station in azimuth  $177^{\circ} 01'$ .

*Payne 2* (Santa Rosa County, G. H. R., 1910).—On the north shore of the Narrows, about 500 meters west of the store at Camp Walton and 2 meters from high-water mark. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 37.03 meters from the station in azimuth  $184^{\circ} 28'$ . A pine tree, marked with a blaze and three nails in the form of a triangle, is 29.14 meters N.  $80^{\circ}$  E. from the station.

*Gulf 2* (Santa Rosa County, G. H. R., 1910).—On a sand ridge on the Gulf side of Santa Rosa Island. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 45.16 meters, inclined distance, from station in azimuth  $157^{\circ} 18'$ . The store at Camp Walton is N.  $5^{\circ}$  W. from the station.

*Burlison 2* (Santa Rosa County, G. H. R., 1910).—On the north shore of the Narrows at the eastern end of Camp Walton, about 550 meters from the post office, 3 meters east of a fence and 8 paces from mean high-water mark. The station is marked according to note 12.<sup>1</sup> A reference mark, described in note 13,<sup>1</sup> is 65.90 meters from the station in azimuth  $162^{\circ} 26'$ . Three pine trees, each marked with a blaze, and three nails in the form of a triangle, are at the following distances from the station: 16.98 meters N.  $52^{\circ}$  E.; 12.77 meters N.  $12^{\circ}$  E.; and 15.03 meters N.  $48^{\circ}$  W.

#### PENSACOLA BAY.

##### PRINCIPAL POINTS.

*Bauer Point* (Escambia County, P. A. W., 1889).—On the first sharp point from the entrance on the north shore of Big Lagoon. The station is on the highest sand hill in the vicinity, about 75 meters from the end of the point, and just at the edge of the timber. It is marked according to note 2.<sup>1</sup>

*Lagoon I* (Escambia County, P. A. W., 1889).—On the neck of land between the Gulf and Big Lagoon, on the first prominent sand hill west of the beacons at Fort McRee. The station is marked according to note 2,<sup>1</sup> except that the north reference post is 2.7 feet from the station, and the other three 2 feet distant.

*Fort Pickens* (Santa Rosa County, F. H. G., 1856; 1910).—This station has been destroyed.

*Navy Yard wharf* (Escambia County, F. H. G., 1860; 1910).—Just east of the steps at the outer end of the Navy Yard wharf, at Warrington. The station is the joint of three granite blocks in the wall of the wharf and is 5.01 feet from the south edge of the wall and 4.22 feet east of the east edge of the steps.

*Pickens (U. S. E.)* (Santa Rosa County, O. B. F., 1901; 1910).—On the southwest corner of Fort Pickens. The station is marked by a half-inch copper bolt set in the top of a square concrete post which projects 6 inches above the ground. The following measurements are from the station to the outer edge of the fort: 10.64 meters south; 22.25 meters southwest (corner of fort); 16.37 meters west; 17.01 meters northwest (angle of wall); and 9.05 meters north (angle of wall).

*Bight* (Santa Rosa County, H. G. O., 1870; 1891).—Lost.

*Pond* (Santa Rosa County, H. G. O., 1870).—In a grove of pine trees on a prominent point of Santa Rosa Island, about  $3\frac{1}{2}$  miles east of Fort Pickens. The station is marked by a stake, surrounded by four other stakes the diagonal lines from which intersect at the station. The underground mark is a hole drilled in a large, flat conglomerate stone about 2 feet below the ground. Three pine trees, blazed and marked with nails, are south, southwest, and west, respectively, from the station, the one to the south being 14.1 meters distant.

<sup>1</sup> See pp. 61-62.

*Fair Point 2* (Santa Rosa County, H. G. O., 1870; 1889).—Lost.

*Lagoon* (Escambia County, F. H. G., 1856; 1891).—Lost.

*Fort McRee* (Escambia County, F. H. G., 1856; 1891).—Lost.

*Warrington west base* (Escambia County, F. H. G., 1856; 1910).—Just north of the military road at a point near a bend in the road opposite the Barrancas Barracks and in the prolongation of the straight part of the road extending from the Navy Yard on which the base line was measured. The station is marked by the center of a wooden plug in the top of an iron screw pile, which was found badly out of plumb in 1910. The southwest corner of the grounds of the Barrancas Barracks is 21.1 meters northeast of the station.

*Warrington east base* (Escambia County, F. H. G., 1856; 1910).—Near the west Navy Yard gate at Warrington and just opposite the east end of the military road along which the base line was measured. The station is marked by a granite monument. The Navy Yard wall opposite the station is marked by copper nails.

*Santa Rosa 2* (Santa Rosa County, F. H. G., 1859; 1890).—Lost.

*Fair Point* (Santa Rosa County, F. H. G., 1857; 1889).—Lost.

*Bayou Grande* (Escambia County, F. H. G., 1856; 1891).—Lost.

*Barkley Point* (Escambia County, F. H. G., 1856; 1891).—Lost.

*Town Point* (Santa Rosa County, F. H. G., 1856; 1860).—Lost.

*Emanuel Point* (Escambia County, F. H. G., 1856; 1890).—Lost.

*Plantation Hill* (Santa Rosa County, F. H. G., 1856; 1891).—Lost.

*Town Point 2* (Santa Rosa County, F. H. G., 1860; 1889).—Lost.

*Barkley Point 2* (Escambia County, F. H. G., 1860; 1891).—Lost.

*Clapps Woods* (Santa Rosa County, P. A. W., 1889; 1910).—Lost.

*Fair Point 3* (Santa Rosa County, P. A. W., 1889; 1910).—This station is marked according to note 2.<sup>1</sup> It was searched for without success in 1910.

*Grande* (Escambia County, P. A. W., 1889; 1910).—On the end of the sand point just south of the mouth of Bayou Grande. The station is marked according to note 2.<sup>1</sup> It was found in 1910 that a car line had been built along the point and the station could not be recovered.

*Chico* (Escambia County, P. A. W., 1889; 1910).—Lost.

*Harbor-master* (Escambia County, P. A. W., 1890; 1901).—The weather vane on the cupola of the building containing the harbor master's office, on the water front on the west side of Palafox Street, Pensacola. Five tacks in the under side of the roof on the inside of the cupola are directly under the weather vane and mark the station.

*Town Point 3* (Santa Rosa County, P. A. W., 1889).—On a sand ridge about 20 meters from high-water mark near the first clump of small pine trees east of the extremity of Town Point. The station is marked according to note 2.<sup>1</sup> The stump of a small tree, blazed and marked with copper nails, is 14.21 meters east of the station. Two small trees, blazed and marked with copper nails, are at the following distances from the station: 11.95 meters south-southeast and 9.96 meters southeast.

*Hickory* (Santa Rosa County, P. A. W., 1890).—On the north shore of the United States Live Oak Plantation, about 2½ miles southeast of Red Fish Point. The station is just below the bluff, close to high-water mark, and is marked according to note 2.<sup>1</sup> Four trees, blazed and marked with copper nails, are at the following distances from the station: Small pine tree, 10.33 meters east; live oak tree, 13.52 meters southeast; hickory tree, 8.75 meters south; and a hickory tree, 17.26 meters southwest.

*Emanuel Point 3* (Escambia County, P. A. W., 1890).—About 1½ miles northeast of Pensacola, on a small green knoll on the first bluff above high-water mark at Emanuel Point. The station is between the Pensacola & Andalusia Railroad track and the shore of Pensacola Bay and is 6.55 meters from the south rail of the track. The station is marked according to note 2.<sup>1</sup> A cypress tree, a live oak tree, and a fence post, each blazed and marked with copper nails, are at the following distances from the station: Cypress tree, 53.5 meters southwest by west; live oak tree, 50.0 meters northeast by north; and the fence post, 23.2 meters northwest by north.

<sup>1</sup> See pp. 61-62.



*Red Fish Point 3* (Santa Rosa County, P. A. W., 1890).—On the beach at Red Fish Point. The station is marked according to note 2.<sup>1</sup> Four pine trees, blazed and marked with copper nails, are at the following distances and azimuths from the station: 12.76 meters, 305° 57'; 29.53 meters, 319° 15'; 41.12 meters, 17° 33'; and 52.30 meters, 66° 13'.

*Sand String* (Santa Rosa County, P. A. W., 1890).—On Hernandez Point, on the east side of Escambia Bay, on a string of hard sand which separates the bay from the salt marsh to the eastward. The station is marked according to note 2.<sup>1</sup>

*Magnolia Bluff* (Escambia County, P. A. W., 1891).—On a sand mound near Magnolia Bluff 4.82 meters east of the east rail of the Pensacola & Andalusia Railroad. The station is marked according to note 2<sup>1</sup> except that the surface mark is a marble post 6 inches square and 28 inches long with diagonal grooves in the upper end, the intersection of which mark the station. A block of wood having a nail in its upper surface to mark the station is between the surface mark and the underground mark. Four trees, blazed and marked with copper nails, are at the following distances and azimuths from the station: Oak, 34.7 meters, 208° 36'; pine, 41.7 meters, 215° 50'; pine, 61.1 meters, 2° 33'; and an oak, 54.1 meters, 37° 07'. A milepost marked F 46 on the north side, L 655 on the west side, and C 159 on the south side is 84.4 meters south by west from the station.

*Trout Crawl* (Santa Rosa County, P. A. W., 1891).—On the beach on the east side of Escambia Bay, about halfway between the mouths of Trout and Crawl Bayous and about 50 meters south of a wharf. The station is marked according to note 2.<sup>1</sup> Three blazed pine trees are at the following distances and azimuths from the station: 22.93 meters, 218° 47'; 43.10 meters, 275° 21'; and 23.64 meters, 344° 42'.

*Devils Point 2* (Escambia County, P. A. W., 1890).—About 100 meters from the end of Devils Point, on a small sand hill near the corner of a picket fence on land belonging to Dr. Brosenham. The station is marked according to note 2.<sup>1</sup> Three blazed oak trees are at the following distances from the station: 14.84 meters west-northwest, 16.92 meters west, and 20.71 meters west-southwest. A copper nail in the post at the corner of the fence is 5.76 meters from the station.

*East Escambia* (Santa Rosa County, P. A. W., 1891).—On the beach at Live Oak Point, about 15 meters from the shore and about 12 meters north of the north rail of the Pensacola & Andalusia Railroad at the northeast end of the Escambia trestle. The station is marked according to note 2.<sup>1</sup>

*West Escambia* (Escambia County, P. A. W., 1891).—On a sand ridge on Lora Point about 5 meters above high-water mark and 18.1 meters northwest of the inner rail of the Pensacola & Andalusia Railroad at the southwest end of the Escambia trestle. The station is marked by the intersection of diagonal grooves in the upper end of a marble post 6 inches square and 26 inches long which projects about 6 inches above the ground. The underground mark is the center of the mouth of a bottle filled and surrounded with cement about 3 feet below the ground. Four large pine posts with a copper nail in each are, respectively, 3.77 feet northeast, 4.22 feet southwest, 4.00 feet southeast, and 4.00 feet northwest. Three trees, blazed and marked with copper tacks, are at the following distances from the station: Oak, 33.0 meters northwest by north; magnolia, 30.1 meters west by north; and a pine, 52.6 meters southwest by south.

*East Head* (Santa Rosa County, P. A. W., 1891).—On a point at the north end of Escambia Bay, on land owned by Mr. Murphy, a timber inspector, and near an old fish house which stands on a sand ridge between the beach and a large salt marsh to the northward. The station is marked according to note 2,<sup>1</sup> except that the surface mark is a marble post 6 inches square and 26 inches long with diagonal grooves in the upper end, the intersection of which marks the station. Four blazed trees are at the following distances from the station: pine, 13.6 meters north by east; pine, 12.2 meters northeast by east; cypress, 17.2 meters south; and pine, 14.6 meters west-northwest.

*West Head* (Escambia County, P. A. W., 1891).—On the north shore of a bight which is just south of the south mouth of the Escambia River and about north by west from Skinner's

<sup>1</sup> See pp. 61-62.



Mill. The station is on a sand ridge which separates the bay from the large salt marsh to the northward, and is marked according to note 2.<sup>1</sup> A blazed pine tree is 5.5 meters west-northwest of the station and another blazed pine tree is west by north from the station a little farther away than the first.

*Gurley* (Santa Rosa County, P. A. W., 1892; 1910).—On the south shore of East Bay about one-fourth mile east of the house of Mr. Gurley, 6 meters from high-water mark and 3 meters outside the fence which surrounds a small clearing belonging to Mr. Gurley. The station is marked according to note 2,<sup>1</sup> and was found in good condition in 1910.

*White Point 3* (Santa Rosa County, P. A. W., 1892; 1910).—Near the end of White Point, on the west shore of East Bay, 6 meters from high-water mark and at the edge of a field of salt wire grass which extends to the edge of the woods three-fourths of a mile distant. The station is marked according to note 2<sup>1</sup> except that there is a standard disk station mark in the top of the tile and the reference posts are northeast, southeast, southwest, and northwest, respectively.

*Rogers* (Santa Rosa County, P. A. W., 1892; 1910).—On the south shore of East Bay about 4 miles southwest of the mouth of East River, one-fourth mile west of the house of Mr. Rogers and about midway between the mouths of two bayous each about three-eighths mile distant. The station is in a clearing on a small elevation about 10 meters from high-water mark. It is marked according to note 2.<sup>1</sup> A live oak stump, marked with a blaze and three copper nails, is 17.2 meters northeast by north from the station. It was found in 1910 that a live oak tree had grown up from this stump.

*Highland* (Santa Rosa County, P. A. W., 1892).—On the northeast shore of East Bay, about 1½ miles northwest of the mouth of East River. The station is in a small clearing on a shell bank about 1 meter above high water and about 12 meters from high-water mark. The station is marked by a marble post 8 by 8 by 30 inches, the top of which is dressed down to 6 by 6 inches and marked with deep diagonal grooves in the top surface, the intersection of which marks the station. The post projects a little above the ground and is surrounded with concrete. The underground mark is a bottle set in cement. Four pine reference posts, marked with copper nails, are each 4 feet from the station, northeast, southeast, southwest, and northwest, respectively.

*Lowland* (Santa Rosa County, P. A. W., 1894).—On the southeast shore of East Bay, about 1½ miles southwest of the mouth of East River. The station is on a mound among palmetto stumps about 5 meters from high-water mark. It is marked according to note 2.<sup>1</sup> Three large pine trees, blazed and with three copper nails in the blaze of each tree, are at the following distances from the station: 18.0 meters south by east, 35.4 meters south by west, and 24.6 meters east.

*Pond* (Santa Rosa County, P. A. W., 1894).—On the east shore of East Bay, on the point just south of the mouth of East River. The station is on a narrow neck of land 30 meters southwest of the mouth of a small bayou, 6 meters from the nearest point of the bayou, and 3 meters from high-water mark of the bay shore. The station is marked according to note 2,<sup>1</sup> except that the reference posts are at the following distances from the station: 4.62 feet north, 4.13 feet east, 3.87 feet south, and 4.04 feet west.

*Guerrilla* (Santa Rosa County, P. A. W., 1894).—On the northeast shore of East Bay, about 1 mile from the mouth of East River. The station is 8 meters from high-water mark on a clear stretch of sand near Guerrilla Bayou, which winds around back of the station and approaches within 5 meters of it. The station is marked according to note 2,<sup>1</sup> except that the reference posts are at the following distances from the station: 3.90 feet north, 3.71 feet east, 3.77 feet south, and 4.10 feet west.

*Middle beacon* (Santa Rosa County, P. A. W., 1892).—The red channel beacon in East Bay, south of Escribano Point.

*Escribano Point 2* (Santa Rosa County, P. A. W., 1892).—On Escribano Point, on the east side of the south end of Blackwater Bay, in the center of a small knoll about 1 meter high and

<sup>1</sup> See pp. 61-62.



about 15 meters from high-water mark at the extremity of the point. The station is marked according to note 2,<sup>1</sup> except that the reference posts are at the following distances from the station: south, 4.09 feet; west, 4.18 feet; north, 3.82 feet; and east, 3.84 feet.

*Lindsay* (Santa Rosa County, P. A. W., 1892).—On the west shore of Blackwater Bay, about 3 meters from high-water mark and about  $7\frac{1}{2}$  meters outside the fence line of Mr. Lindsay's land. The station is marked by a copper nail in the cement that fills the top of a screw pile, which in turn is set in cement. Four pine posts marked with copper nails are each 4 feet from the station north, east, south, and west, respectively. The diagonal lines joining these posts intersect at the station. Three blazed pine trees, each marked with three copper nails, are at the following distances from the station: 10.41 meters north by west, 12.30 meters west, and 16.66 meters southwest.

*Grass Point 2* (Santa Rosa County, P. A. W., 1892).—On Grassy Point, a prominent point on the east side of Blackwater Bay, on a sand knoll about 6 meters from high-water mark on the outermost spit of marshy land that forms the end of the point. The station is marked according to note 2.<sup>1</sup>

*Eagle Point 2* (Santa Rosa County, P. A. W., 1892).—On Eagle Point, on the west shore of Blackwater Bay, about 5 meters from high-water mark. The station is marked according to note 2.<sup>1</sup> Two live oak trees, blazed and marked with three copper nails in each, are at the following distances from the station: 11.6 meters west-southwest, and 11.5 meters northwest. A pine stump, also blazed and marked with three copper nails, is 9.4 meters north-northeast of the station.

*Weaver Mouth* (Santa Rosa County, P. A. W., 1892).—On the south shore of the stream known as Broad Mouth, which is the lower mouth of the Yellow River. The station is on the sand beach, 3 meters from the high-water mark of the river and 50 meters from the high-water mark of Blackwater Bay. The station is marked according to note 2.<sup>1</sup>

*Robinson Point 2* (Santa Rosa County, P. A. W., 1892).—On Robinson Point, on the west shore of Blackwater Bay, on a small knoll 30 meters from high-water mark. The station is marked according to note 2,<sup>1</sup> except that three of the reference posts are slightly more than 4 feet from the station.

*Turtle Point* (Santa Rosa County, P. A. W., 1892).—Near high-water line on Turtle Point, on the west shore of Blackwater Bay. The station is marked by a pole held in place by braces.

*Yellow River* (Santa Rosa County, P. A. W., 1892).—On the east shore of Blackwater Bay, on the south edge of the hard land north of the marshy point which is just north of the north mouth of the Yellow River. The station is 30 meters from the river and 10 meters from high-water mark of the bay, and is marked according to note 2.<sup>1</sup>

*Bay Point* (Santa Rosa County, P. A. W., 1892).—On Bay Point, on the west side of Blackwater Bay just back of the Bay Point sawmill and at the south edge of the road running to the mill. The station is about centrally located on the point, being midway between the high-water marks of Blackwater River to the north and Blackwater Bay to the south. The station is marked according to note 2,<sup>1</sup> except that there are only three reference posts and these are somewhat nearer than 4 feet to the station. The following distances are from the station: Northwest corner of the brick machine shop of the Bay Point sawmill, 25.34 meters east-southeast; northwest corner of the brick blacksmith shop of the Bay Point sawmill, 29.67 meters east; and a large live oak tree, blazed and marked with three copper nails, 37.72 meters west-northwest.

*Wards Basin 2* (Santa Rosa County, P. A. W., 1892).—On the east shore of Blackwater Bay, about one-eighth of a mile southeast of the point at the entrance to Wards Basin. The station is 5 meters from high-water mark and at the edge of the first heavy timber south of the entrance to Wards Basin. The station is marked according to note 2.<sup>1</sup> Three trees, blazed and marked with three copper nails in each tree, are at the following distances from the station: Pine, 17.5 meters east by south; cypress, 17.8 meters northeast; and a pine, 18.3 meters south-east by east.

<sup>1</sup> See pp. 61-62.

*Peterson Point 2* (Santa Rosa County, P. A. W., 1892).—On Peterson Point, at the north end of Blackwater Bay, on the east side of the mouth of Blackwater River and directly across from Bay Point. The station is on the extremity of the point, just within the high-water line. It is marked by a copper nail, surrounded by three other copper nails in the top surface of a live oak stump.

*Shields Point* (Santa Rosa County, P. A. W., 1892).—On Shields Point, on the west shore of Upper Blackwater Bay or Blackwater River. The station is about 5 meters from high-water mark and about 5 meters from a bluff back of the station. It is marked according to note 2.<sup>1</sup>

*Milligan* (Santa Rosa County, P. A. W., 1892).—On the west shore of Upper Blackwater Bay or Blackwater River, on land belonging to Mr. Milligan about three-eighths of a mile north of Shields Point. The station is at the base of a small bluff covered with young black oak trees and about 5 meters from high-water mark. It is marked according to note 2.<sup>1</sup>

*Last Point* (Santa Rosa County, P. A. W., 1892).—On the east shore of Upper Blackwater Bay, or Blackwater River, on what is known locally as Graveyard Point, which is the first point south of the mouth of the narrow part of Blackwater River. The point is just south of the mouth of a small stream, and the station is among the trees about 15 meters from high-water mark. The station is marked according to note 2.<sup>1</sup> Three pine trees, blazed and with three copper nails in the blaze of each tree, are at the following distances from the station: 7.7 meters north-northwest, 11.6 meters north-northeast, and 6.6 meters east-northeast.

*Clapps Woods 2* (Santa Rosa County, G. H. R., 1910).—On Santa Rosa Island about 150 meters west of the eastern edge of Clapps Woods and about 37 meters from high-water mark. The station is marked according to note 12<sup>1</sup> except that the tile of the surface mark is surrounded with concrete. Three pine trees, each marked with a blaze and with three copper nails in the form of a triangle, are at the following distances from the station: 20.06 meters, N. 41° W.; 48.40 meters, N. 75° W.; and 61.63 meters S. 31° W.

*Fair Point 1910* (Santa Rosa County, G. H. R., 1910).—On a long, narrow sand point known as Fair Point, on the south side of Pensacola Bay, about 300 meters from the extremity of the point, about 175 meters from the edge of the woods, 60 paces from high-water mark to the southwest, and 50 paces from high-water mark to the northeast. The station is marked according to note 12.<sup>1</sup> A reference mark, a 3-inch galvanized-iron pipe 4 feet long projecting 1 foot above the ground, is 40.26 meters from the station in azimuth 285° 38'. Two live oak trees, each marked with a blaze and with three iron nails in the form of a triangle, are, respectively, 38.0 meters S. 41° E. from the station and 39.0 meters S. 59° W.

#### SUPPLEMENTARY POINTS.

*Barrancas wharf shed* (Escambia County, P. A. W., 1891).—The ventilator of the shed near the end of the Barrancas Wharf.

*Revenue flagstaff* (Escambia County, P. A. W., 1891).—The flagpole on the Revenue building at Warrington.

*Fort Barrancas barracks flagstaff* (Escambia County, P. A. W., 1891).—The tall flagpole at the Barrancas Barracks grounds.

*Warrington National cemetery flagstaff* (Escambia County, P. A. W., 1891).—The tall flagpole in the grounds of the National Cemetery at Warrington.

*Warrington Catholic Church spire* (Escambia County, P. A. W., 1891; 1901).—The cross on the spire of the Catholic Church at Warrington.

*Commandant's cupola* (Escambia County, P. A. W., 1891; 1901).—The top of the cupola on the commandant's residence at the Pensacola Navy Yard.

*Navy-yard flagstaff* (Escambia County, P. A. W., 1891; 1901).—The tall flagpole in the grounds of the Pensacola Navy Yard.

*Navy Yard derrick* (Escambia County, P. A. W., 1891; 1901).—Lost.

*Life saving station flagstaff* (Santa Rosa County, P. A. W., 1891).—The top of the tall flagstaff at the life saving station near the eastern end of Santa Rosa Island.

<sup>1</sup> See pp. 61-62.



*Marine railroad stack* (Santa Rosa County, P. A. W., 1891; 1901).—The iron smokestack on the power house of the marine railroad at Town Point on the United States Live Oak Plantation.

*Chico flagstaff* (Escambia County, P. A. W., 1891).—The tall flagpole a little south of the bridge that crosses the mouth of Bayou Chico near Brent's mill.

*Chico white chimney* (Escambia County, P. A. W., 1891).—The white chimney on a residence just opposite Brent's mill at the mouth of Bayou Chico.

*Clump* (Escambia County, P. A. W., 1891).—A flag in a tree near the mouth of Bayou Chico.

*Stevedores flagstaff* (Escambia County, P. A. W., 1891; 1901).—Lost.

*Scandinavian Church spire* (Escambia County, P. A. W., 1891; 1901).—The cross on the Scandinavian Church spire, near the foot of Palafox Street, Pensacola.

*Pensacola Post Office* (Escambia County, P. A. W., 1891; 1901).—The north flagpole on the post-office building at Pensacola. It is the flagpole used for the United States flag, the other flagpole being used for the flags of the Signal Service.

*Episcopal Church spire* (Escambia County, F. H. G., 1856; 1891).—The cross of the spire of the Episcopal Church, opposite Savilla Square, at the corner of Adams and Saragossa Streets, Pensacola.

*Colored Church spire* (Escambia County, F. H. G., 1856; 1891).—The spire of the Colored Church on Intendentia Street between Tarragona and Alconiz Streets, Pensacola.

*Wright's mill chimney* (Escambia County, P. A. W., 1891; 1901).—The large, round chimney used for burning sawdust at Wright's mill, which is at the eastern end of Intendentia Street, Pensacola.

*Muscogee outer gable* (Escambia County, P. A. W., 1891; 1901).—Lost.

*Pensacola Ice Works* (Escambia County, P. A. W., 1891).—The tall brick chimney of the ice works at the corner of Tarragona and Chase Streets, Pensacola.

*Pensacola railroad station* (Escambia County, P. A. W., 1891; 1901).—The top of the cupola of the station of the Pensacola & Andalusia, and Louisville & Nashville R. R., at the corner of Tarragona and Wright Streets, Pensacola.

*Herron's house* (Escambia County, P. A. W., 1891; 1901).—The top of the cupola on Mr. Herron's residence at the corner of Palafox and Jackson Streets, Pensacola.

*Pensacola standpipe* (Escambia County, P. A. W., 1891; 1901).—The center of the top of the waterworks standpipe near the corner of Strong and Palafox Streets, Pensacola.

*Well's chimney* (Escambia County, P. A. W., 1891).—The brick chimney on the southern end of Mr. Well's residence, at the corner of Fourth Street and Twelfth Avenue, Pensacola.

*Oak* (Escambia County, P. A. W., 1891).—A flag in a tree near the mouth of Bayou Texas.

*Magnolia Wharf* (Escambia County, P. A. W., 1890).—On the end of the wharf at Magnolia Bluff, on the east side of the southern end of Escambia Bay. The station is marked by five copper nails.

*Magnolia Wharf flagstaff* (Escambia County, P. A. W., 1890; 1901).—Lost.

*Bohemia shingle mill* (Escambia County, P. A. W., 1891).—The smokestack on the shingle mill at Bohemia.

*Bohemia, round brick chimney* (Escambia County, P. A. W., 1891).—The tall, round, brick chimney at Bohemia.

*Escambia Trestle, northeast chimney* (Escambia County, P. A. W., 1891).—The chimney on the northeast end of the dwelling house on the Escambia Trestle.

*Skinner's sawmill stack* (Escambia County, P. A. W., 1891).—The iron smokestack at Skinner's sawmill, Escambia.

*Skinner's planing mill stack* (Escambia County, P. A. W., 1891).—The iron smokestack at Skinner's planing mill at Escambia.

*Lone chimney* (Escambia County, P. A. W., 1891).—The round brick chimney standing alone on the west shore of Escambia Bay about 1½ miles northwest of Skinner's mill.

*Wreck* (Escambia County, P. A. W., 1891).—A flagpole on the wreck of an old scow near the southern entrance to the Escambia River.

*Leaning chain house* (Escambia County, P. A. W., 1891).—This station has been destroyed. The chain house has been torn down and a new one built about 15 yards east of it.

*Chain house, east gable* (Escambia County, P. A. W., 1891).—The east gable of the shanty which is used as a chain house near the middle of the bay, about half a mile north of the entrance to the Escambia River.

*White Point beacon* (Santa Rosa County, P. A. W., 1892).—The red channel beacon in East Bay, off White Point.

*Escribano Point beacon* (Santa Rosa County, P. A. W., 1892).—The red channel beacon in Blackwater Bay above Escribano Point.

*Two Trees* (Santa Rosa County, P. A. W., 1892).—On the east shore of Blackwater Bay in the bight between Grassy Point and Catfish Point. The station is marked only by a signal, a 4 by 9 inch stick of timber 25 feet long, to which boards are nailed. It is near two isolated pine trees, to one of which the stick of timber is fastened.

*Catfish Point* (Santa Rosa County, P. A. W., 1892).—On the east shore of Blackwater Bay, on Catfish Point just south of the entrance to Catfish Bayou. The station is marked only by a signal, a pine sapling 6 inches in diameter and 30 feet long, held firmly erect by means of cross pieces of scantling, with boards nailed the entire length.

*Scaffold* (Escambia County, P. A. W., 1892).—On the east shore of Blackwater Bay, about 250 yards above the mouth of Broad River, which is the lower mouth of the Yellow River, and about one-half mile below the middle mouth of the Yellow River. The station is about 3 meters from high water, on a slightly elevated strip of sand at the outer edge of the marsh and about 150 meters from the edge of thin woods. The station is marked by a copper nail in the top of a stake surrounded by four pine posts, each 4 feet long, with a copper nail in the top of each, approximately north, south, east, and west from the station, at distances of 4.09, 3.75, 4.22, and 3.55 feet, respectively.

*Mill chimney* (Santa Rosa County, P. A. W., 1892).—The tall brick chimney of the Bayport sawmill.

*Shingle-mill stack* (Santa Rosa County, P. A. W., 1892).—The larger iron stack of Carey & Oldinger's shingle mill, north of Shields Point on the west shore of Blackwater River.

*Oak* (Santa Rosa County, P. A. W., 1892).—A flag at the top of a tall pine tree on the northwest shore of Oakland Basin.

*Dry-dock derrick* (Santa Rosa County, P. A. W., 1892).—The top of the derrick of the Bagdad Dry Dock.

#### PERDIDO BAY.

##### PRINCIPAL POINTS.

*Perdido Range* (Baldwin County, Ala., A. T. M., 1889).—On a sand hill about 25 feet high on the island south of Perdido Entrance. The station is marked according to note 2,<sup>1</sup> except that the reference posts are each 6 feet distant, northeast, southeast, southwest, and northwest, respectively.

*Johnson* (Baldwin County, Ala., A. T. M., 1889; 1911).—On the north shore of a small bay north of the old entrance to Perdido Bay, on a sand ridge covered with oak and palmetto scrub about 100 meters from the shore and about 100 meters southwest of the abandoned house belonging to Mr. Johnson. The station is marked by a standard disk station mark in a block of concrete 10 inches square on top and underground by a jug. A reference mark, a square concrete post marked with an inscribed triangle with a nail at each vertex and the center, is on the sand ridge 25.85 meters from the station in azimuth 105° 21'. Another reference mark, a round concrete post marked with an inscribed circle with a nail at the center, is on the sand ridge 10.71 meters from the station in azimuth 285° 05'.

<sup>1</sup> See pp. 61-62.



*Perdido III* (Escambia County, A. T. M., 1889).—On the neck of land between Old River and the Gulf, on the second sand ridge back from the Gulf shore. The station is marked according to note 2,<sup>1</sup> except that the reference posts are each 6 feet distant. A pine tree near the river shore is about 300 meters N. 53° W. from the station and the river shore at the west end of the woods is about 300 meters N. 27° E.

*Bear Point* (Baldwin County, Ala., A. T. M., 1889; 1911).—Lost.

*Perdido II* (Escambia County, A. T. M., 1889).—On the neck of land which separates Old River from the Gulf, on the second sand ridge back from the Gulf shore. The station is marked according to note 2,<sup>1</sup> except that the reference posts are each 9 feet distant.

*Hummock* (Escambia County, A. T. M., 1889; 1911).—On Inerarity Peninsula a few meters south of the highest part of a hill which is about 25 feet high and about one-fourth mile west of the narrow neck of the peninsula. To reach the station, land on the Inner Bay shore of the narrow neck and follow the edge of the woods until a large pine tree marked with a triangular blaze is reached just south of an old road, and then follow a blazed trail up the hill. The station is marked by a standard disk station mark in a mass of concrete 10 inches square on top in the lower part of which is embedded a tile. The underground mark is a stone jug filled and surrounded with concrete. A pine tree and an oak tree, each marked with a triangular blaze, are, respectively, 14.15 meters N. 70° W. and 12.98 meters N. 65° W. from the station.

*Goat* (Escambia County, A. T. M., 1889; 1911).—This station is 82.32 meters from *Goat 2* (see p. 134) in azimuth 95° 08'. It is marked by a spike at the center of a tile which is filled and surrounded with concrete and underground by a bottle set in concrete. Three pine trees, each marked with a triangular blaze, are at the following distances and azimuths from the station: 41.21 meters, 24° 27'; 31.02 meters, 184° 10'; and 20.77 meters, 215° 06'.

*Perdido I* (Escambia County, A. T. M., 1889).—On the second ridge of sand hills back of the Gulf shore south of the east end of Ono Island. The station is marked by a spike in the top of a tile which is filled and surrounded with concrete and underground by a bottle set in concrete 3 feet below the surface. Four hard pine posts, each about 7 feet distant, form a square about the station.

*Nelson* (Escambia County, A. T. M., 1889; 1911).—About 30 paces from the edge of a bluff, which is about 35 feet high and is covered with a dense growth of small trees, on the south shore of Inerarity Peninsula northeast of the eastern end of Ono Island. A little mound, the remains of an old house, is about 6 paces east by north from the station and an oleander is 10 paces north by east. Two magnolias about 150 meters apart can be seen from Old River, and together with the oleander they are the best marks for finding the locality. The station is marked by a standard disk station mark in a block of concrete 10 inches square on top and projecting about 1 foot, in the lower part of which is embedded a tile. The underground mark is a bottle. Three trees, each marked with a triangular blaze, and two old oak stumps are at the following distances from the station: Oak, 19.83 meters N. 39° E.; pine, 7.92 meters N. 46° E.; stump, 26.65 meters S. 62° E.; magnolia, 24.36 meters S. 54° E.; and stump, 12.88 meters S. 37° W.

*Lagoon III* (Escambia County, P. A. W., 1889).—On one of the numerous sand ridges on the Gulf shore just abreast of the head of Big Lagoon. The station is marked according to note 2.<sup>1</sup>

*Piney* (Escambia County, P. A. W., 1889).—On the north side of the eastern end of Big Lagoon, about 500 meters from the shore, on a heavily timbered sand ridge which is bordered with swamp and water on all sides but the east. The station is marked according to note 2.<sup>1</sup>

*Lagoon II* (Escambia County, P. A. W., 1889).—On one of the low sand hills on the neck of land between Big Lagoon and the Gulf and near the New Inlet which has been cut since the station was established. The station is marked according to note 2.<sup>1</sup>

*Red Bluff* (Escambia County, P. A. W., 1889).—On the highest part of the prominent sand hill known as Red Bluff, on the north shore of Big Lagoon. The hill is covered with a

<sup>1</sup> See pp. 61-62.

dense growth of scrub oak and on the top are a few small dead pine trees. The station is marked according to note 2.<sup>1</sup>

*Inerarity west* (Escambia County, A. T. M., 1889; 1911).—This station has been destroyed.

*Rockwood* (Baldwin County, Ala., A. T. M., 1889).—Near the northeastern extremity of the point just south of the entrance to Bay La Launch, on a bluff just south of a wharf which extends to the northward from the end of the point, and about 300 meters northeast of Mr. Rockwood's house. The station is marked according to note 2,<sup>1</sup> except that there are no reference posts. A live oak tree and two live oak stumps, each marked with a blaze, are at the following distances, respectively, from the station: 4.2 meters S. 87° E., 4.3 meters S. 13° W., and 4.2 meters N. 45° E.

*Ross* (Baldwin County, Ala., A. T. M., 1889; 1911).—In the water at the end of Ross Point, on the west side of Perdido Bay. The station is marked according to note 2,<sup>1</sup> except that the reference posts are each about 6 feet distant. A stump is in the water 13.5 meters south of the station and another stump is at the water's edge 4.5 meters west.

*Red Bluff* (Baldwin County, Ala., A. T. M., 1889; 1911).—On the northwest shore of Perdido Bay, on a bluff about 50 feet high known as Red Bluffs, about 4 meters from the edge of the bluff midway between two cottages owned by Mr. M. P. LeGrand. The station is marked by a brass cartridge case in the top of a tile which is filled and surrounded with concrete. A driven well is 68.48 meters from the station in azimuth 130° 41'. A reference mark, a bottle at the center of a square block of concrete, is in line to the well 23.35 meters from the station. Three small pines, each marked with a triangular blaze, are at the following distances and azimuths from the station: 5.61 meters, 122° 07'; 9.34 meters, 125° 39'; and 8.17 meters, 153° 14'.

*Manuel* (Baldwin County, Ala., A. T. M., 1889; 1911).—Lost.

*Dupont* (Escambia County, A. T. M., 1889; 1911).—On Dupont Point, a long, sandy point on the east side of Perdido Bay, near the middle of the point about 15 meters west of the woods and grass line. The station is marked according to note 4.<sup>1</sup> A reference mark, a round block of concrete inscribed with a triangle with a nail at the center and each vertex, is on hard land in the palmetto scrub 25.05 meters from the station in azimuth 291° 47'. Another reference mark, a nail at the center of a piece of tile embedded in a round block of concrete, is 46.51 meters from the station in the same azimuth as the first reference mark. Four pine trees, each marked with a triangular blaze, are at the following distances and azimuths from the station: 16.23 meters, 239° 28'; 21.75 meters, 253° 26'; 20.10 meters, 284° 31'; and 20.73 meters, 312° 22'.

*Suarez* (Baldwin County, Ala., A. T. M., 1889; 1911).—At high-water mark on a sand ridge on Suarez Point, on the west side of Perdido Bay. The station is marked according to note 8.<sup>1</sup> A reference mark, an iron pipe at the center of a round block of concrete, is back of the sand ridge 14.64 meters from the station in azimuth 74° 35'. Another reference mark, a square block of concrete inscribed with a triangle, with a nail at the center and each vertex is back of the sand ridge 20.97 meters from the station in azimuth 123° 43'. A pine tree and a bay tree, each marked with a triangular blaze, are, respectively, 22.65 meters from the station in azimuth 78° 40' and 24.92 meters in azimuth 111° 23'. A dead tree is 15.32 meters distant in azimuth 160° 50', and a stump is 4.28 meters distant in azimuth 324°.

*Nix* (Escambia County, S. F., 1890; 1911).—Lost.

*Chagrin* (Baldwin County, Ala., S. F., 1890; 1911).—Lost.

*Cummings* (Escambia County, S. F., 1890; 1911).—Lost.

*Grassy* (Baldwin County, Ala., S. F., 1890; 1911).—In the water at the end of Grassy Point, on the northwest side of Perdido Bay. The station is marked by a galvanized iron pipe 7 feet long which projects about 2 feet above low water. A reference mark, a galvanized iron pipe 11 feet long projecting 2 feet above the ground and surrounded by a mass of concrete, is in line to station *Double* 21.20 meters from the station in azimuth 329° 17' 42". Four stumps

<sup>1</sup> See pp. 61-62.



are at the following distances from the station: 1.9 meters N.  $74^{\circ}$  E, 7.2 meters S.  $59^{\circ}$  E, 5.7 meters S.  $35^{\circ}$  W., and 1.7 meters S.  $65^{\circ}$  W.

*Double* (Escambia County, S. F., 1890; 1911).—In the water at the end of the western one of two points known as Double Point, on the southeast side of Perdido Bay. Just back of the station is a small area of hard ground on which there are some small trees and palmetto scrub. The station is marked by a galvanized iron pipe 12 feet long projecting 2 feet above high water and surrounded by a square block of concrete from 1 foot below ground to within 1 foot of the top. A reference mark, a galvanized iron pipe 6 feet long projecting 2 feet above the ground and surrounded by a mass of concrete which extends from 6 inches above the ground to 2 feet below, is on hard ground in line with station *Grassy*, 28.02 meters from the station in azimuth  $329^{\circ} 17' 42''$ . Another reference mark, described in note 7,<sup>1</sup> is on hard ground 36.6 meters from the station in azimuth  $358^{\circ} 35'$ . Five stumps are at the following distances from the station: 12.6 meters N.  $80^{\circ}$  E., 1.2 meters S.  $5^{\circ}$  E., 1.0 meter S.  $80^{\circ}$  W., 1.7 meters N.  $5^{\circ}$  W., and 3.7 meters N.  $49^{\circ}$  W. A pine tree and a pine stump, each marked with a triangular blaze, are, respectively, 2.44 meters and 3.50 meters from the first reference mark.

*River East* (Escambia County, S. F., 1890; 1911).—Lost.

*River West* (Baldwin County, Ala., S. F., 1890; 1911).—In the water at the end of the point on the southwest side of the mouth of the Perdido River. The station is marked by a galvanized iron pipe 6 feet long surrounded by concrete. A reference mark, a galvanized iron pipe 12 feet long projecting 2 feet above the ground and surrounded by concrete, is in the marsh 26.45 meters from the station in azimuth  $63^{\circ} 57'$ . Two old stumps are, respectively, 6.1 meters from the station in azimuth  $256^{\circ}$  and 3.7 meters in azimuth  $355^{\circ}$ .

*Boom* (Escambia County, S. F., 1891; 1911).—On the southern part of a point on the northeast side of Perdido River, about a mile from the mouth of the river. The station is marked by a nail in the top of a cypress stub 6 inches in diameter and 5 feet long which projects 6 inches above the ground. A dead cypress tree, a pine tree, and a cypress stump, each marked with a triangular blaze, are at the following distances, respectively, from the station: 17.86 meters N.  $46^{\circ}$  W., 25.52 meters N.  $7^{\circ}$  W., and 4.10 meters S.  $12^{\circ}$  W.

*Squid* (Baldwin County, Ala., S. F., 1891; 1911).—Lost.

*Juniper* (Baldwin County, Ala., S. F., 1891; 1911).—Lost.

*Hirse* (Escambia County, S. F., 1891; 1911).—On a small point known as Hirse's Landing on the northeast shore of Perdido River, about 2 miles above the mouth. The station is marked by a nail in the top of a 4-inch tile filled with concrete. Three pine trees, each marked with a triangular blaze, are at the following distances from the station: 7.98 meters N.  $6^{\circ}$  W., 19.10 meters N.  $19^{\circ}$  E., and 6.55 meters N.  $32^{\circ}$  E.

*Hard* (Escambia County, S. F., 1891; 1911).—Lost.

*Wire* (Baldwin County, Ala., S. F., 1891; 1911).—Lost.

*Steamboat* (Escambia County, S. F., 1891; 1911).—On a small, narrow point on the northeast shore of Perdido River, opposite the upper end of Steamboat Island. The station is marked by a nail in the top of a juniper stub 6 inches in diameter and about 4 feet long which is surrounded with concrete. A pine stump is 5.5 meters west of the station.

*Roots* (Baldwin County, Ala., S. F., 1891; 1911).—On the southwest shore of Perdido River, about three-fourths mile above Steamboat Island and about 60 yards above the mouth of a small stream that empties into the river. The station is marked by a nail in the top of a juniper stub 6 inches in diameter and 5 feet long. A pine stump, a cypress tree, and two pine trees, each marked with a triangular blaze, with a nail at the center of the blaze, are at the following distances, respectively, from the station: 1.83 meters, 9.30 meters, 10.67 meters, and 7.92 meters.

*Kee* (Escambia County, S. F., 1891; 1911).—On soft ground on the northeast side of Perdido River, about three-fourths mile above Steamboat Island. The station is marked by a nail

<sup>1</sup> See pp. 61-62.



in the top of a tile which is filled with concrete. Three small pine trees, each marked with a triangular blaze, with a nail at the center of the blaze, are at the following distances from the station: 5.20 meters northeast, 5.67 meters south-southeast, and 1.98 meters north-northeast.

*Alabama Cut-off* (Baldwin County, Ala., S. F., 1891; 1911).—On soft ground on the southwest point of the island which is between the main channel of Perdido River and Alabama Cut-off. The station is marked by a nail in the top of a juniper stub 6 inches in diameter and 5 feet long. A pine tree, a pine stump, and a juniper stump, each marked with a triangular blaze, with a nail at the center of the blaze, are at the following distances from the station: 3.35 meters north, 2.13 meters west-northwest, and 1.98 meters east-southeast.

*Florida Cut-off* (Escambia County, S. F., 1891; 1911).—On firm ground on the northeast side of Perdido River just below the mouth of a creek known as Florida Cut-off. The station is marked by a nail in the top of a tile which is filled with concrete. A pine stump, a dead pine tree, and a juniper tree, each marked with a triangular blaze with a nail at the center of the blaze, are at the following distances, respectively, from the station: 2.01 meters west-northwest, 6.35 meters north-northeast, and 5.60 meters northwest.

*Titi* (Baldwin County, Ala., S. F., 1891; 1911).—On the west shore of Perdido River just north of the entrance to Alabama Cut-off and about one-fourth mile south of the mouth of Blackwater River. The station is marked by a nail in the top of a tile which is filled with concrete. Two juniper trees and a cypress tree, each marked with a triangular blaze with a nail at the center of the blaze, are at the following distances, respectively, from the station: 4.49 meters north, 4.27 meters northeast, and 5.03 meters southeast.

*Bay* (Escambia County, S. F., 1891; 1911).—Lost.

*Log* (Baldwin County, Ala., S. F., 1891; 1911).—On soft ground near the southwest extremity of the point between Blackwater and Perdido Rivers. The station is marked by a nail in the top of a juniper stub 6 inches in diameter and 5 feet long. A pine tree, a juniper stump, and a dead juniper tree, each marked with a triangular blaze with a nail at the center of the blaze, are at the following distances, respectively, from the station: 3.89 meters north, 3.20 meters southeast, and 6.25 meters southwest.

*Goat 2* (Escambia County, E. S., 1911).—On the north shore of Ono Island just in front of a clump of small oak trees about 20 meters from the extremity of Goat Point. The station is marked according to note 4.<sup>1</sup> A reference mark, described in note 6,<sup>1</sup> is 10.48 meters from the station in azimuth  $280^{\circ} 43'$ . Five pine trees and one oak tree, each marked with a triangular blaze, are at the following distances and azimuths from the station: 18.52 meters,  $101^{\circ} 34'$ ; 18.46 meters,  $105^{\circ} 27'$ ; 20.90 meters,  $184^{\circ} 51'$ ; 22.04 meters,  $189^{\circ} 03'$ ; (oak) 12.30 meters,  $295^{\circ} 55'$ ; and 16.89 meters,  $3^{\circ} 55'$ .

*Ross 2* (Baldwin County, Ala., E. S., 1911).—At the western end of Perdido Bay, on a sand ridge just back of the marsh on Ross Point and about one-fourth mile from Josephine post office. The station is marked according to note 8.<sup>1</sup> Three pine trees, each marked with a triangular blaze, are at the following distances and azimuths from the station: 19.75 meters,  $29^{\circ} 05'$ ; 19.77 meters,  $51^{\circ} 17'$ ; and 22.02 meters,  $132^{\circ} 18'$ .

*Inerarity west 2* (Escambia County, E. S., 1911).—At the southwest end of Perdido Bay, on the high part of a hummock about 50 meters from the northwest extremity of Inerarity Peninsula and about midway between the shore to the north and the marsh to the south. The station is marked according to note 8.<sup>1</sup> A reference mark, described in note 6,<sup>1</sup> is 7.39 meters from the station in azimuth  $284^{\circ} 12'$ . Four pine trees and one magnolia, each marked with a triangular blaze, are at the following distances and azimuths, respectively, from the station: 17.66 meters,  $39^{\circ} 04'$ ; 10.79 meters,  $110^{\circ} 15'$ ; 9.33 meters,  $175^{\circ} 01'$ ; 18.10 meters,  $271^{\circ} 36'$ ; and 38.50 meters,  $283^{\circ} 28'$ .

*Bear Point 2* (Baldwin County, Ala., E. S., 1911).—On a sand ridge near the shore on Bear Point and separated by a marsh from a high sand hill covered with oaks and palmettos back of the station. The station is marked according to note 8.<sup>1</sup> A reference mark, described in note 6,<sup>1</sup> is on the hill mentioned above, 57.90 meters from the station in azimuth  $150^{\circ} 09'$ .

<sup>1</sup> See pp. 61-62.



*Inlet* (Escambia County, E. S., 1911).—On a bluff on the south shore of Ono Island directly opposite the inlet to Perdido Bay that was opened in the storm of 1906. The station is marked by a standard disk station mark in the top of a galvanized-iron pipe 7 feet long which projects 6 inches above the ground and is surrounded by a block of concrete 10 inches square and 2 feet deep. Two pine trees, each marked with a triangular blaze, are, respectively, 70 meters from the station in azimuth  $152^{\circ} 41'$  and 57 meters in azimuth  $180^{\circ} 28'$ .

*Ala* (Baldwin County, Ala., E. S., 1911).—On the most easterly sand hill on Alabama Point. The station is marked by a standard disk station mark in the top of a galvanized-iron pipe 7 feet long which projects 8 inches above the surface and is surrounded at the upper end by a round block of concrete 2 feet deep. The only pine tree on the point, marked with a triangular blaze, is 50.50 meters from the station in azimuth  $226^{\circ} 45'$ .

## SUPPLEMENTARY POINTS.

*Tarkill* (Escambia County, A. T. M., 1889).—On a rounded point, just south of Tarkill Bay on the east side of Perdido Bay, on a hard sand hill about 5 feet high. The station is marked by a nail in the top of a stake. A burnt stump and a pine stump, each marked with a blaze and a spike, are, respectively, 7.6 meters S.  $44^{\circ}$  E. and 5.9 meters N.  $41^{\circ}$  W. from the station.

*Bend* (Escambia County, S. F., 1890; 1911).—Lost.

*Fell* (Baldwin County, Ala., S. F., 1890; 1911).—On the west side of Perdido Bay about a mile north of Suarez Point and about one-half mile north of Fells Point, on the beach below a bluff just north of a break in the bluff, and about 15 meters from high-water mark. The station is marked according to note S<sup>1</sup> except that there is a standard disk station mark in the bottle of the underground mark. It was reported in 1913 that the disk had been removed from the surface mark. A reference mark, a nail in the top of a juniper stake embedded in a square block of concrete, is on the bluff 61.84 meters from the station in azimuth  $210^{\circ} 16'$ . Another reference mark, similar to the first except that the concrete is finished round, is below the bluff 50.45 meters from the station in azimuth  $236^{\circ} 46'$ . A pine tree marked with a triangular blaze with a spike at the center of the blaze is on the bluff in azimuth  $120^{\circ} 07'$  from the station. A dead juniper tree, similarly marked, is 9.21 meters from the station in azimuth  $323^{\circ} 44'$ . Other distances and azimuths were measured as follows: Stump, 13.30 meters,  $40^{\circ} 15'$ ; pine tree, 9.16 meters,  $219^{\circ} 43'$ ; and stump, 9.21 meters,  $323^{\circ} 44'$ .

*May* (Baldwin County, Ala., S. F., 1890; 1911).—Lost.

*Cove* (Escambia County, S. F., 1890; 1911).—Lost.

*Powell* (Escambia County, S. F., 1890; 1911).—Lost.

*Head* (Escambia County, S. F., 1890; 1911).—Lost.

*Hester* (Escambia County, S. F., 1890; 1911).—Lost.

*Marcus* (Escambia County, S. F., 1890; 1911).—Lost.

## SKETCHES.

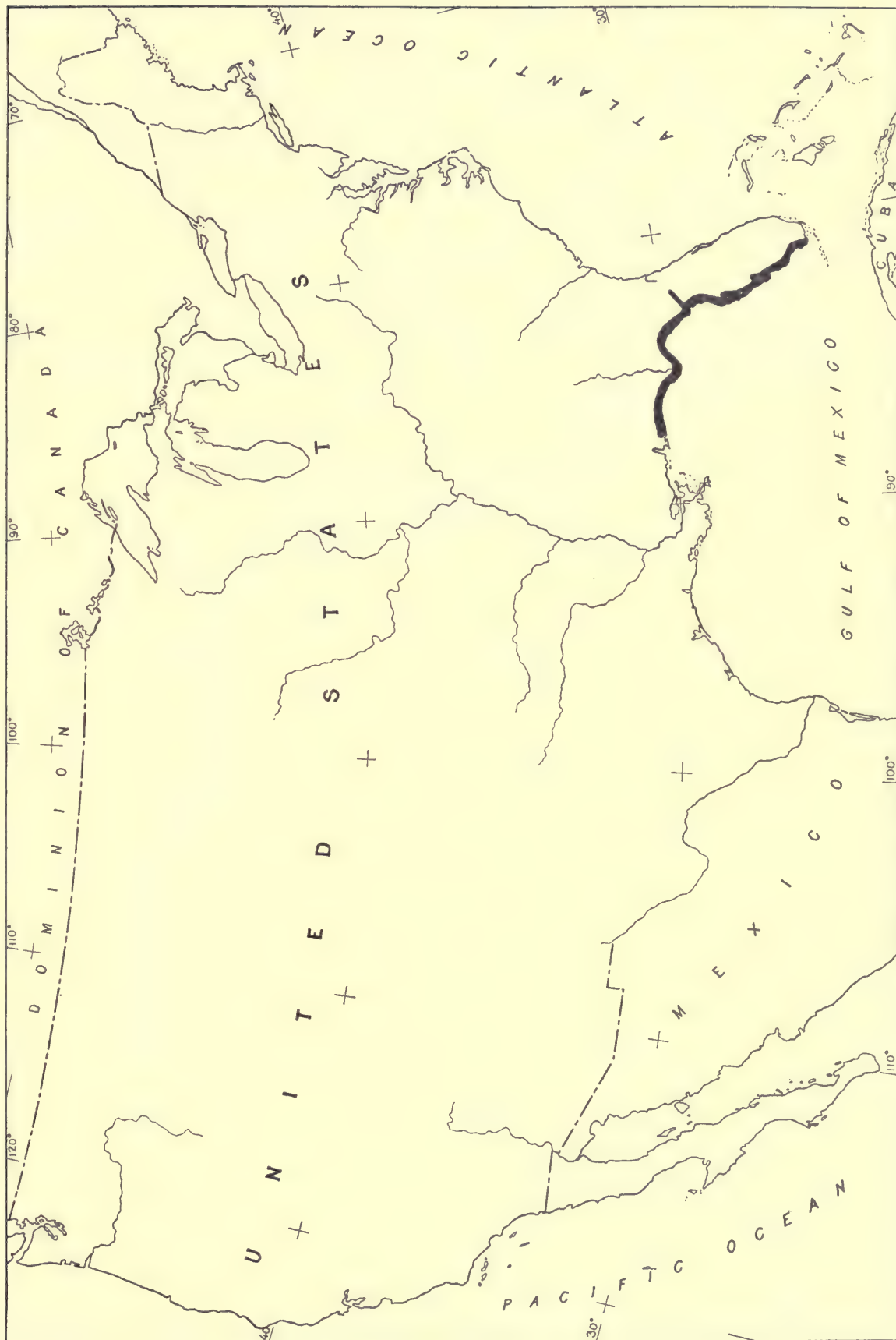
On the following sketches are shown the location of all the triangulation stations given in this publication. The lines of the main scheme are also shown, full lines when observed over from both of the stations connected and broken at one end when observed over only from the station at the full end of the line. Occupied stations are given by triangles and unoccupied or intersection stations are given by circles. On several sketches, where old work and recent work overlap, the recent work has been shown in red to avoid confusion. In case an old station and a new station plot at the same point, a black triangle or circle is shown with both names. In the same way, where a red line of the scheme coincides with a black line, only the black line is shown. The beach measures referred to on page 6 are shown with heavy lines and the measured bases with still heavier lines.

The first two of the following sketches are index sketches, one showing the general location of the whole triangulation and the other showing on a map of Florida the limits of each separate triangulation sketch.

<sup>1</sup> See pp. 61-62.



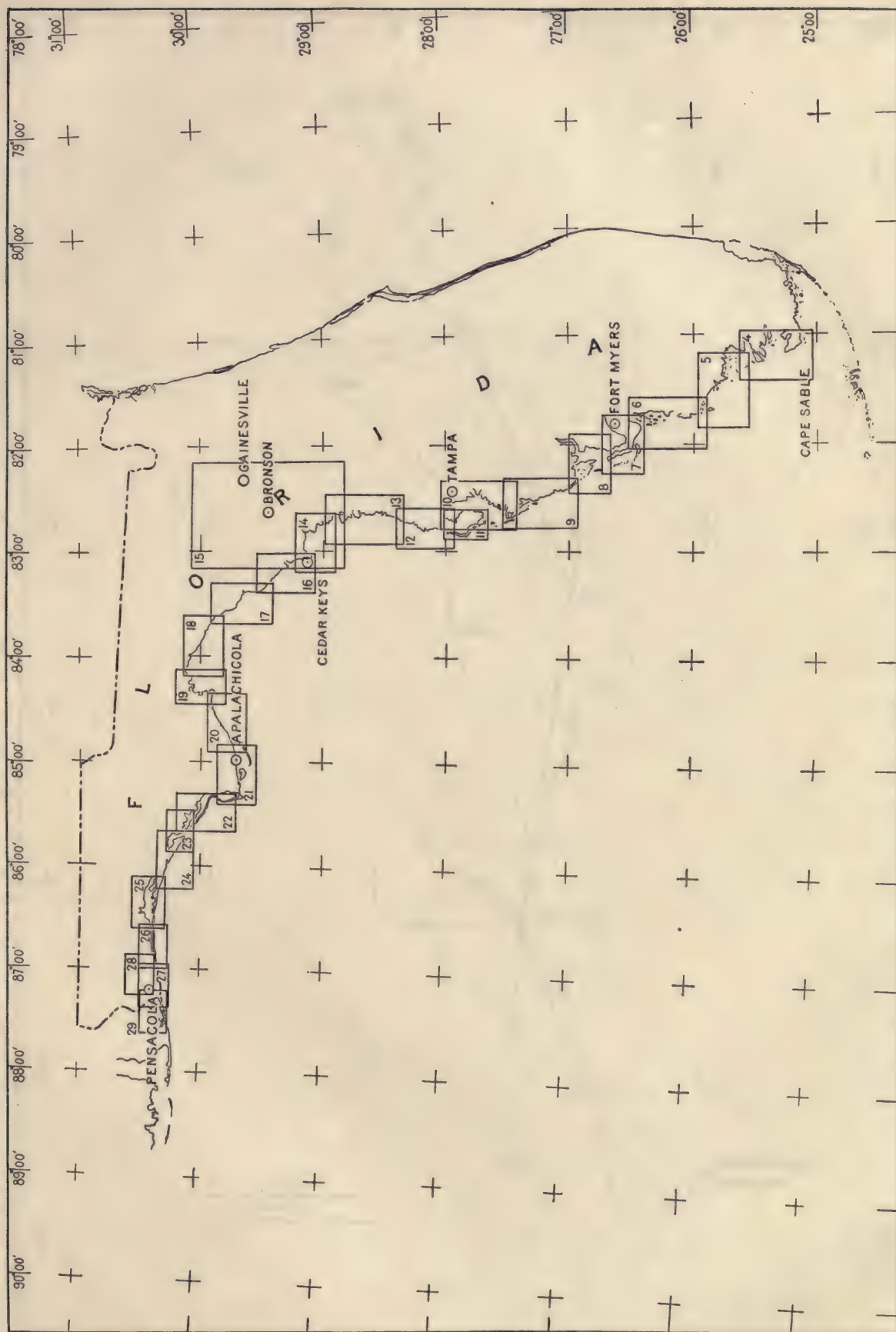




INDEX MAP SHOWING GENERAL LOCATION OF THE TRIANGULATION.



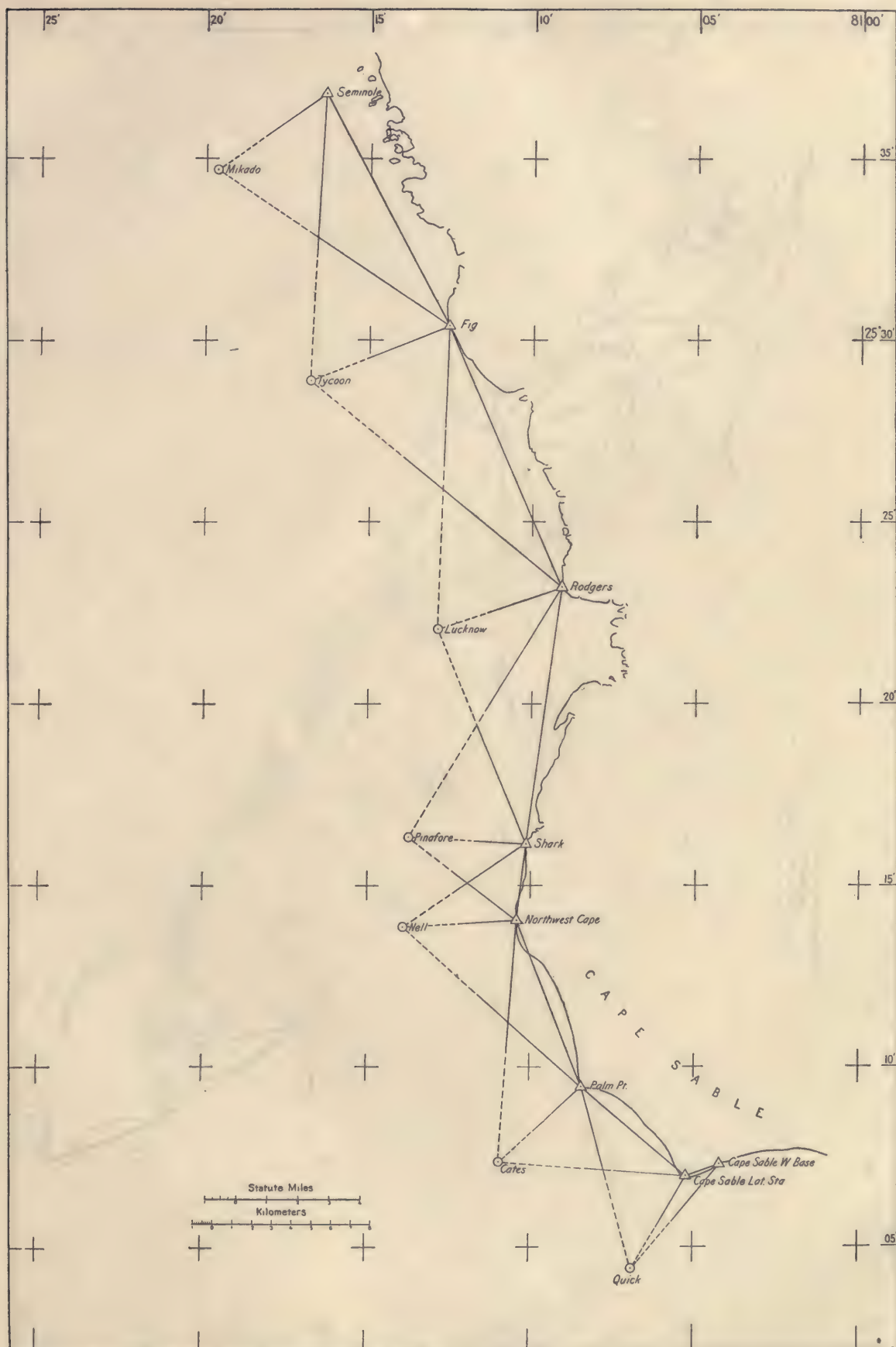




INDEX MAP SHOWING THE LIMITS OF EACH OF THE FOLLOWING SKETCHES.



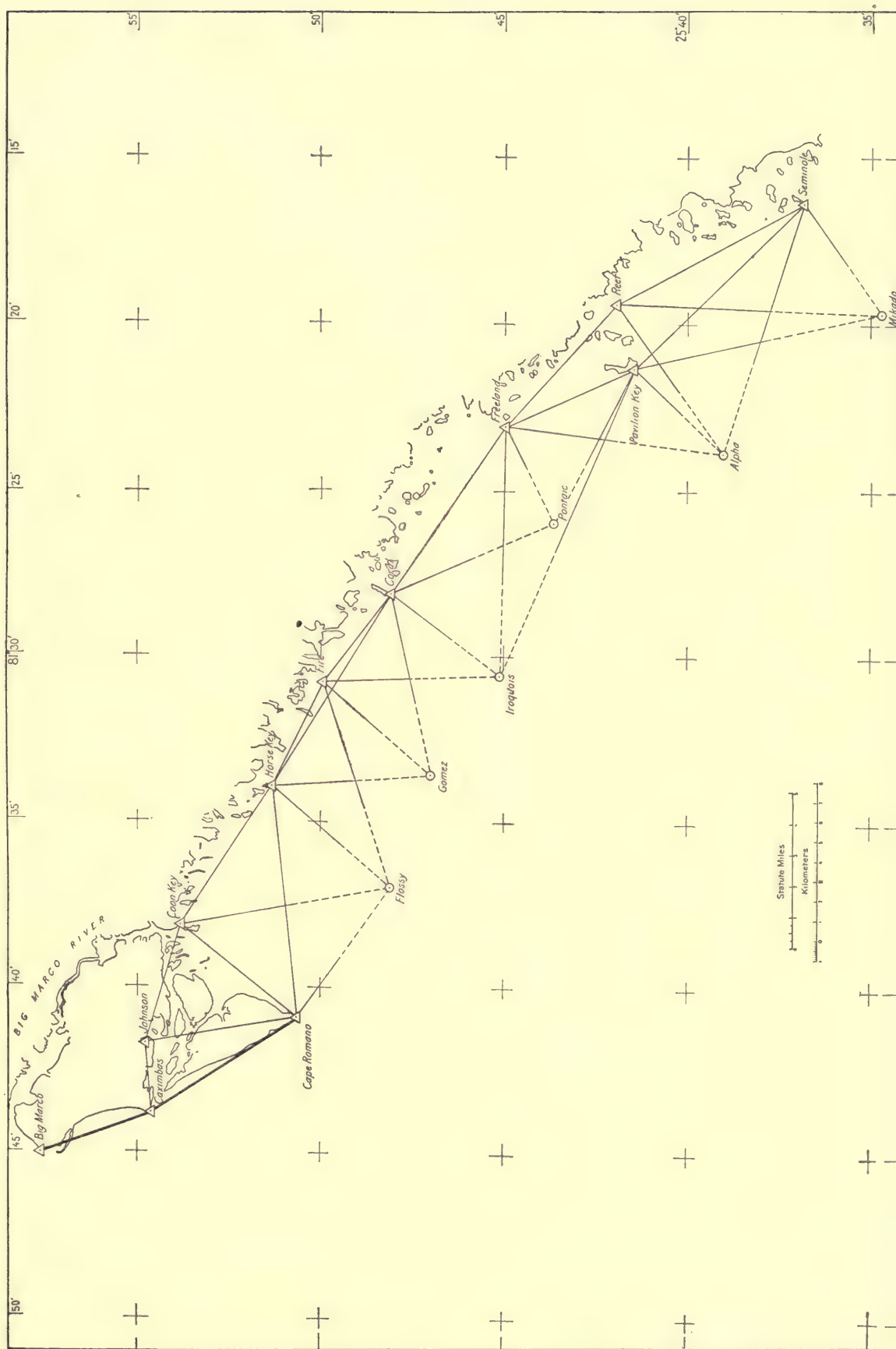




TRIANGULATION, CAPE SABLE TO MIKADO-SEMINOLE.



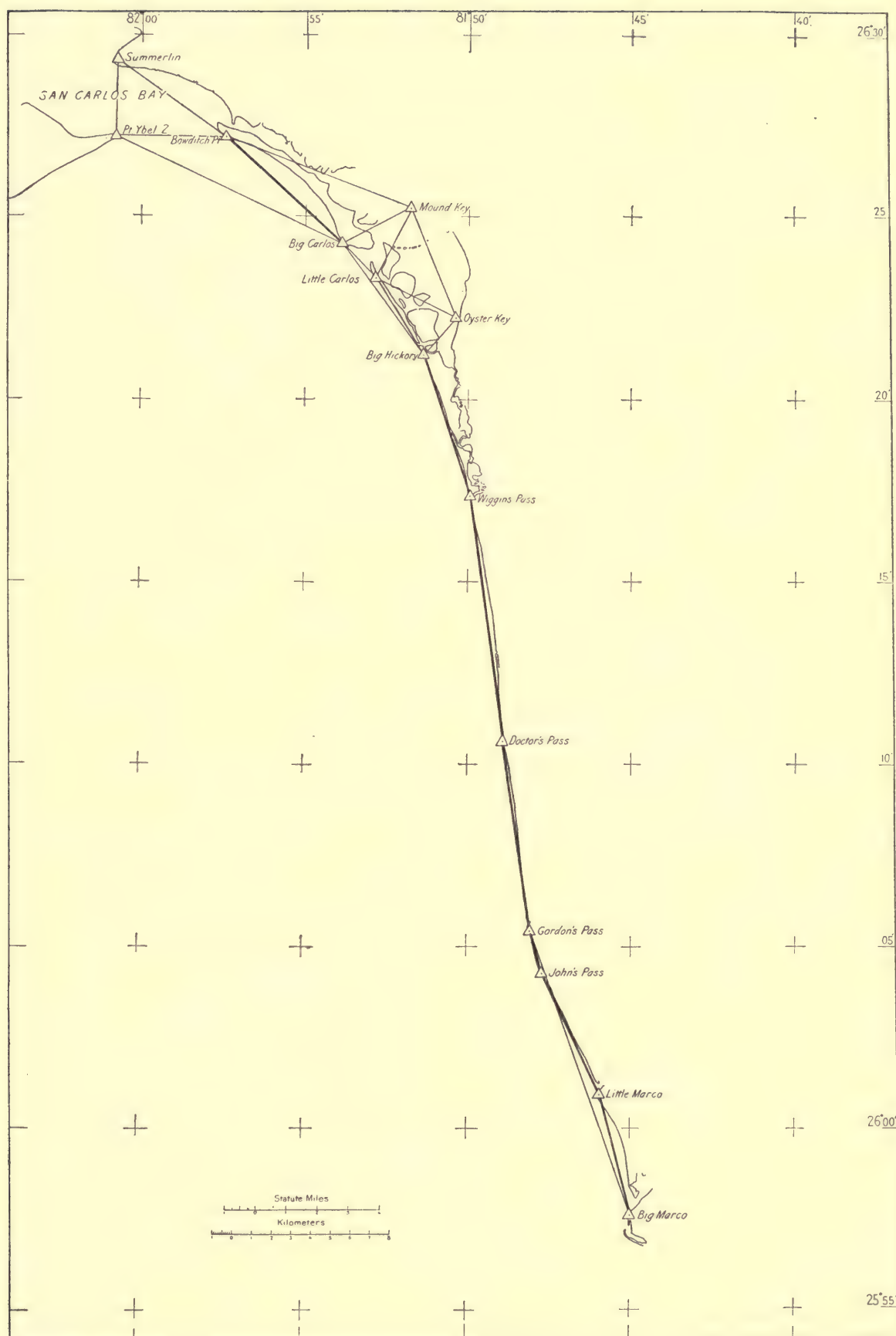




TRIANGULATION, MIKADO-SEMINOLE TO BIG MARCO RIVER.



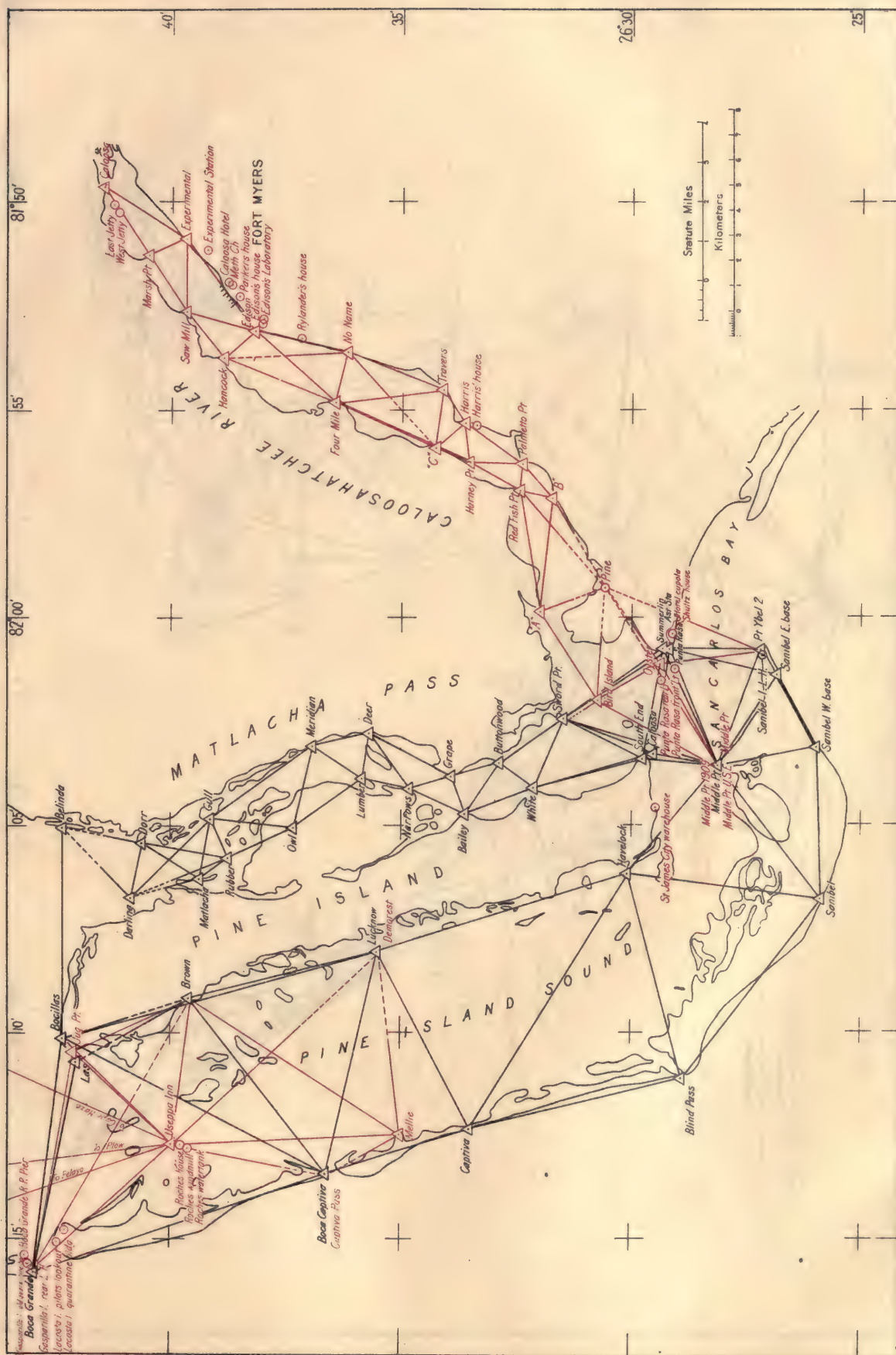




TRIANGULATION, BIG MARCO RIVER TO SAN CARLOS BAY.





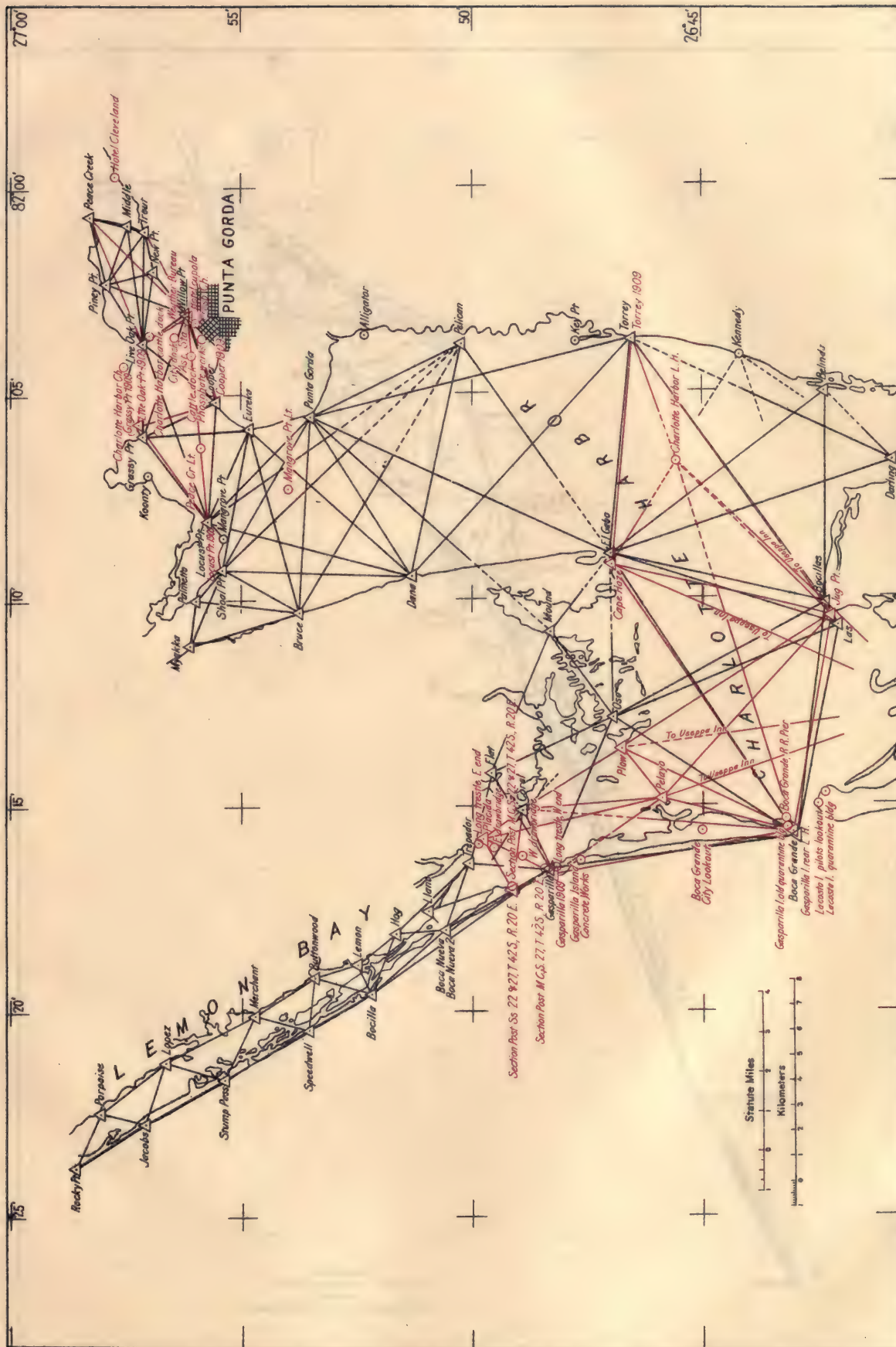


ENGRAVED AND PRINTED BY THE U.S. GEOLOGICAL SURVEY

TRIANGULATION, CALOOSAHATCHEE RIVER TO CHARLOTTE HARBOR.







TRIANGULATION, CHARLOTTE HARBOR.

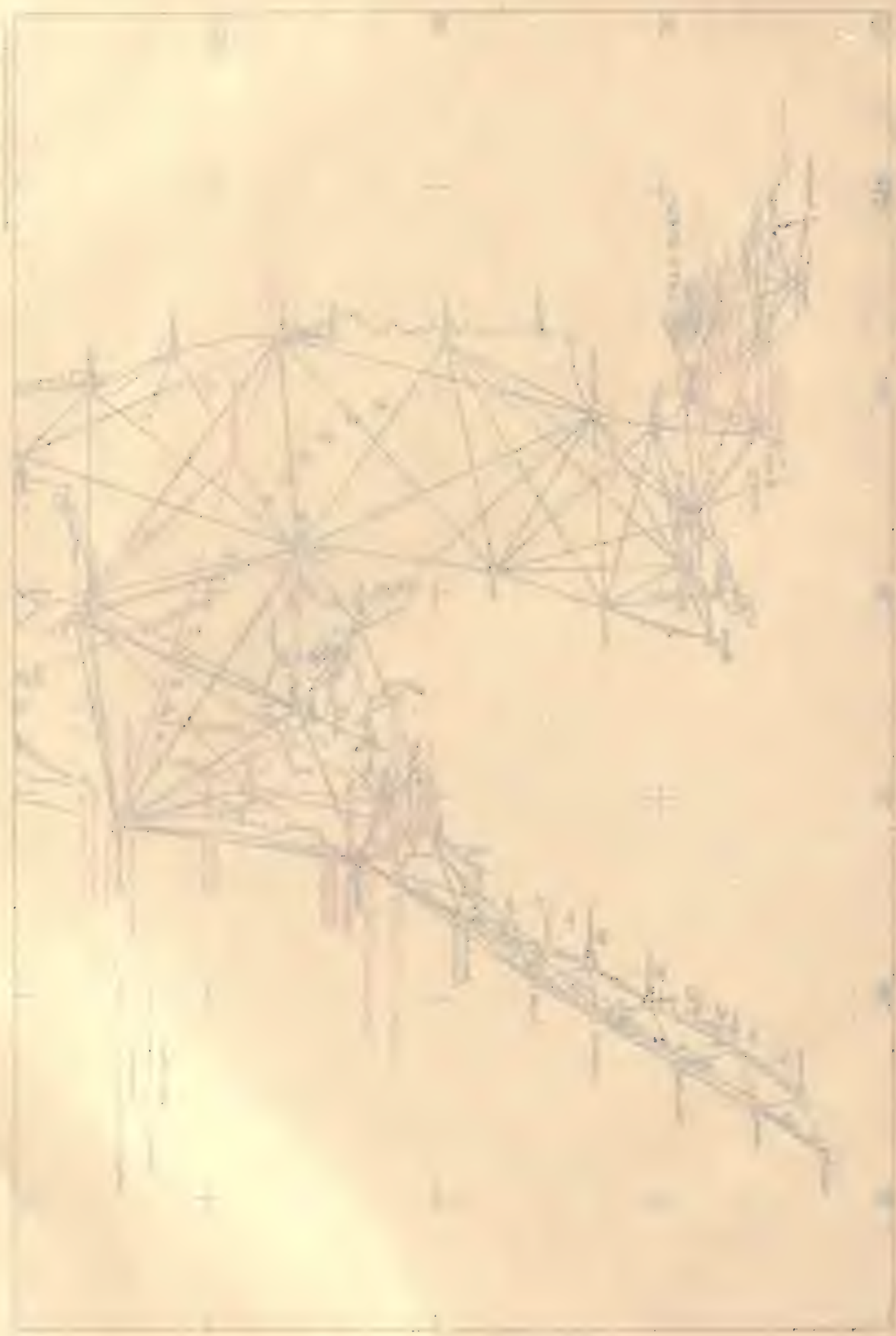
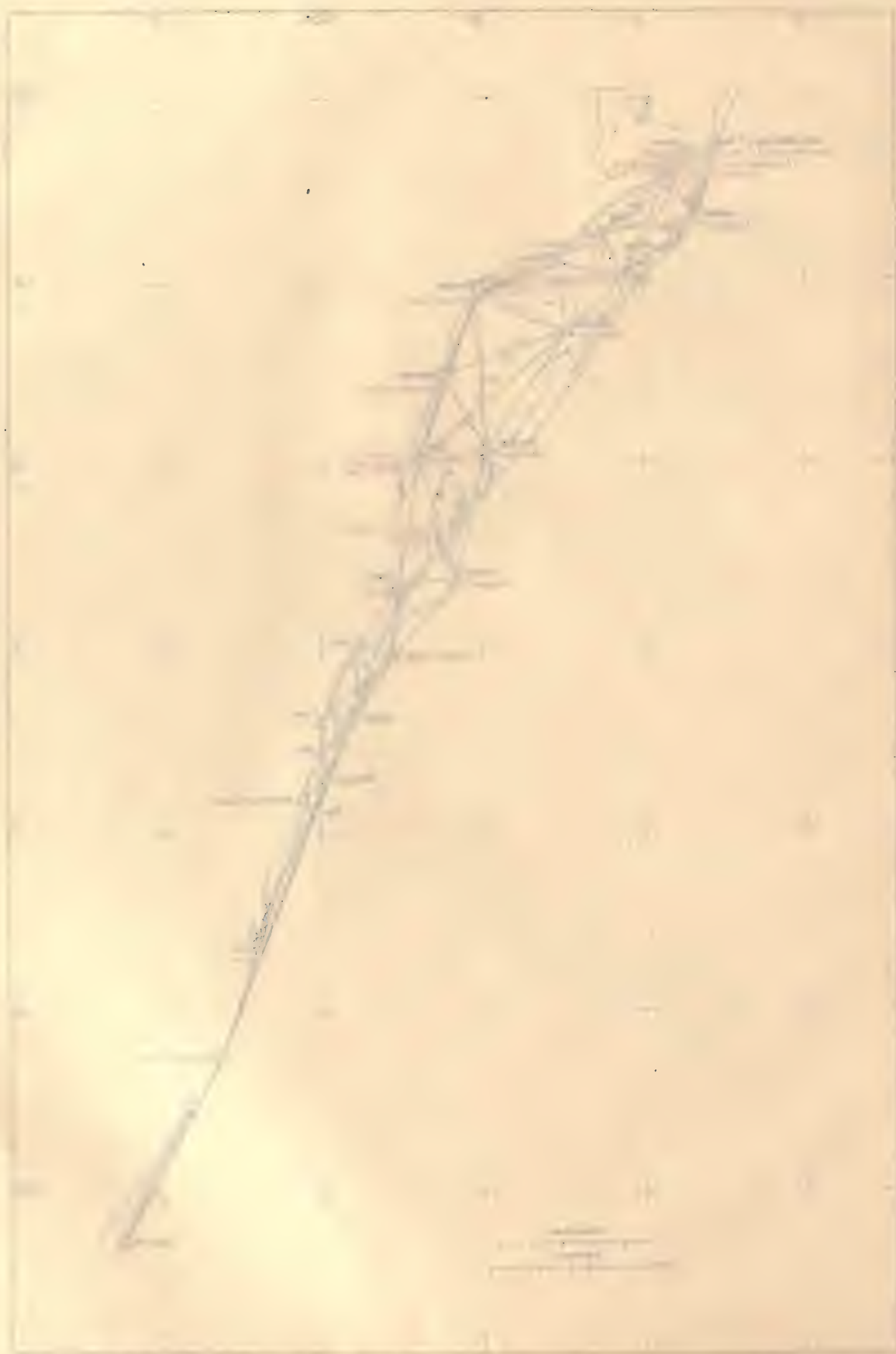


Diagram illustrating the structure of a network.





TRIANGULATION, LEMON BAY TO SARASOTA BAY.



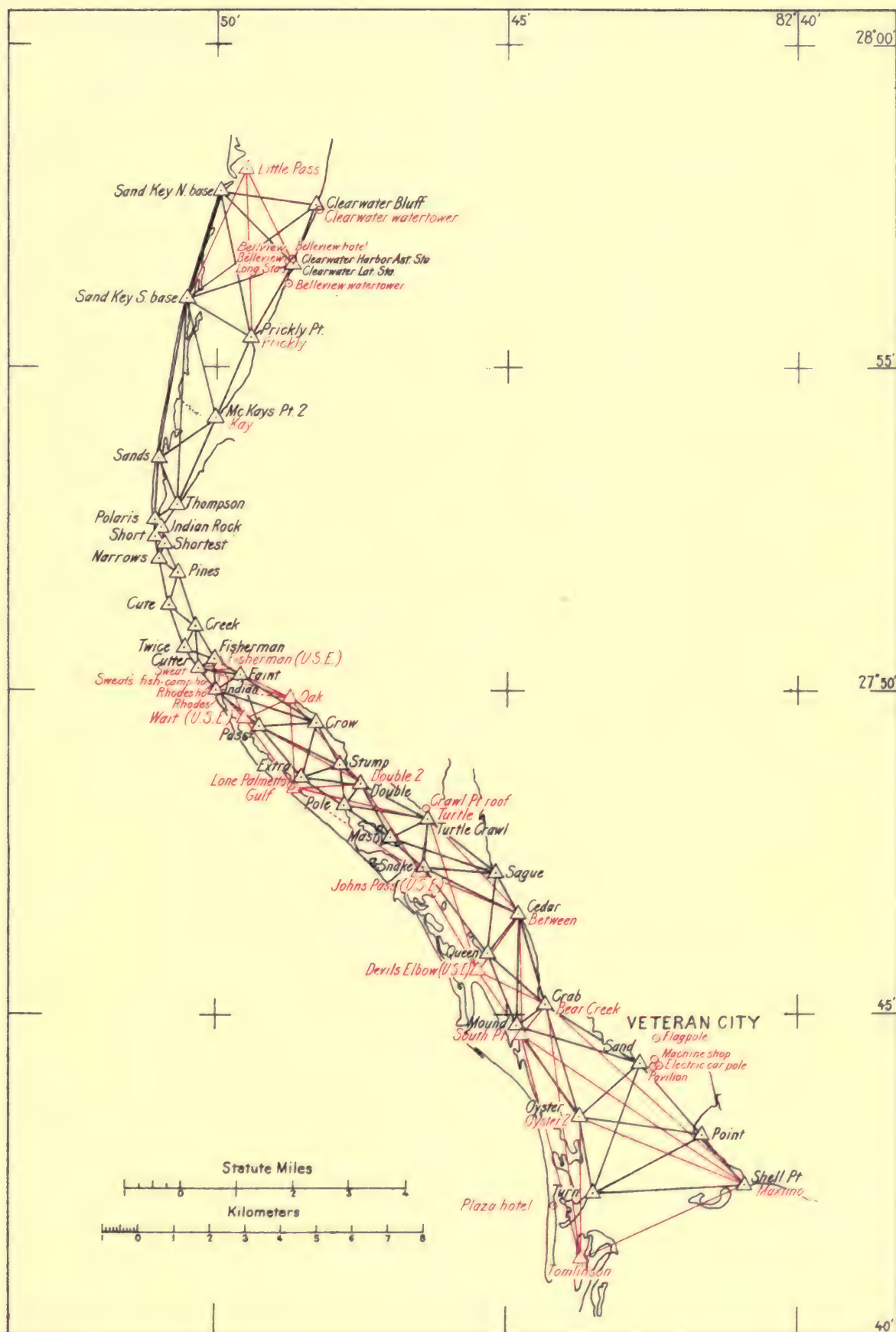




TRIANGULATION, TAMPA BAY.



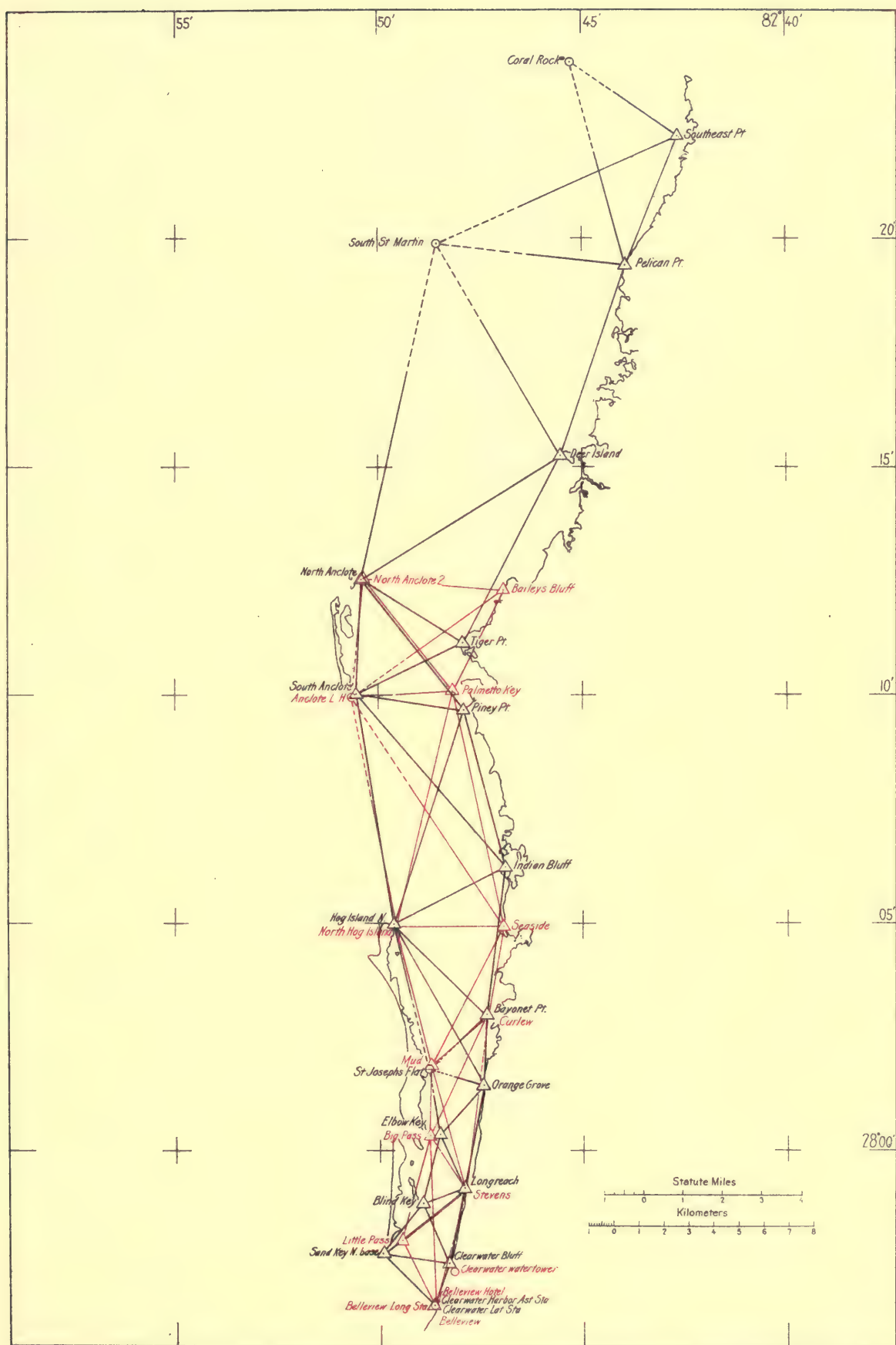




TRIANGULATION, BOCA CEIGA BAY





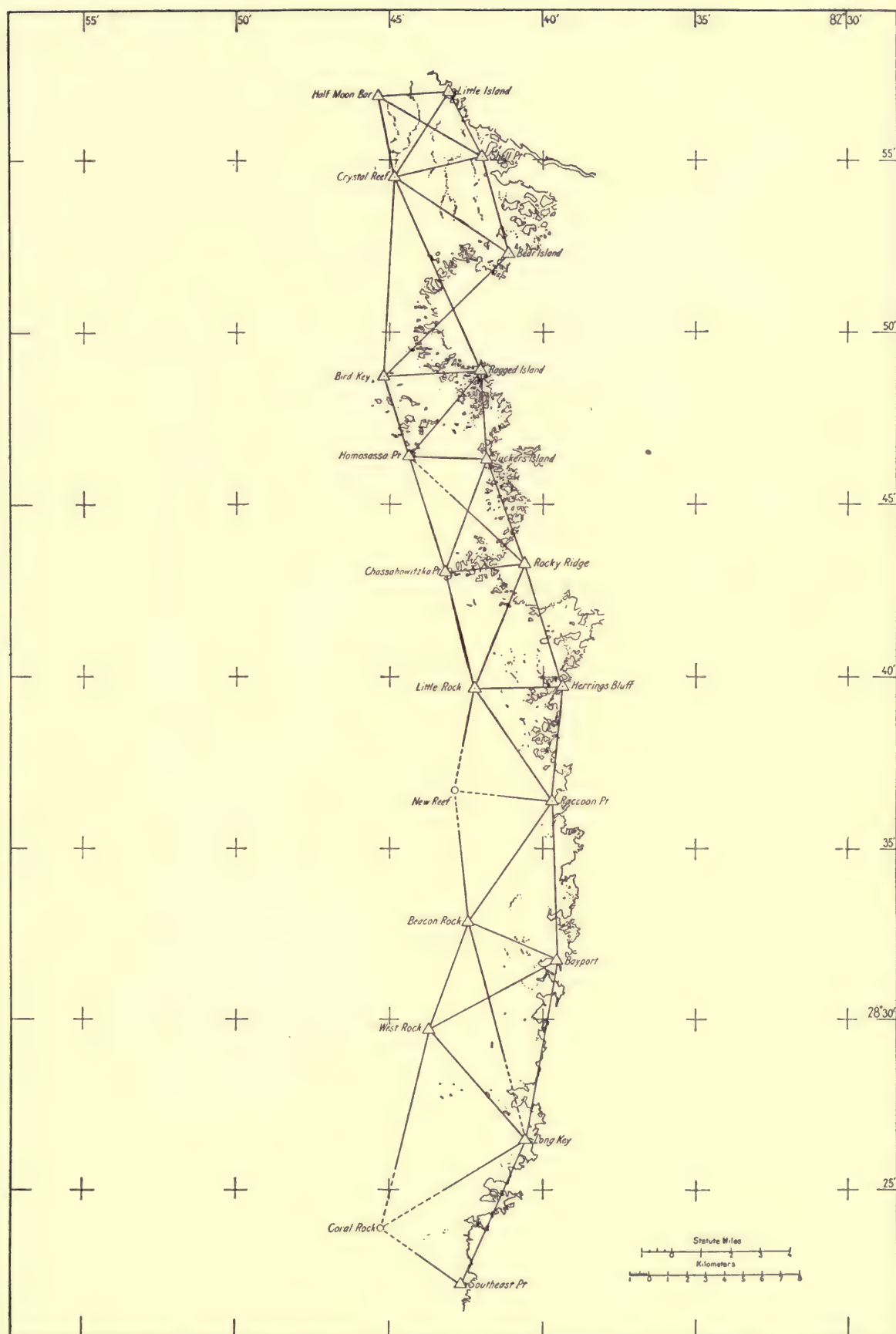


ENGRAVED AND PRINTED BY THE U.S. GEOLOGICAL SURVEY

TRIANGULATION. CLEARWATER HARBOR TO CORAL ROCK. SOUTHEAST POINT.



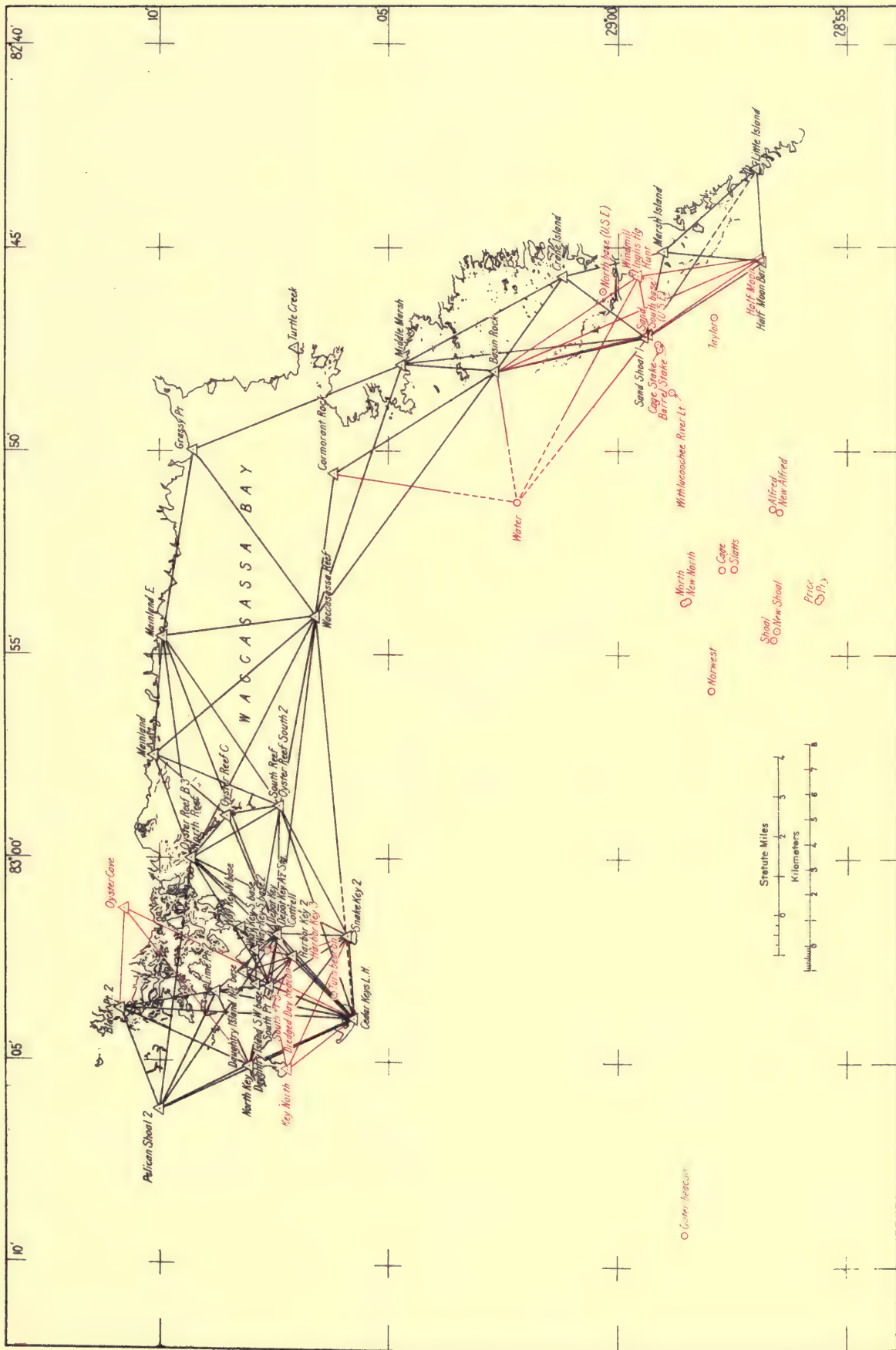




TRIANGULATION, CORAL ROCK-SOUTHEAST POINT TO WITHLACOOCHIE RIVER.







ENGRAVED AND PRINTED BY THE U.S. GEOLOGICAL SURVEY

TRIANGULATION, WITHLACOOCHEE RIVER TO CEDAR KEYS.



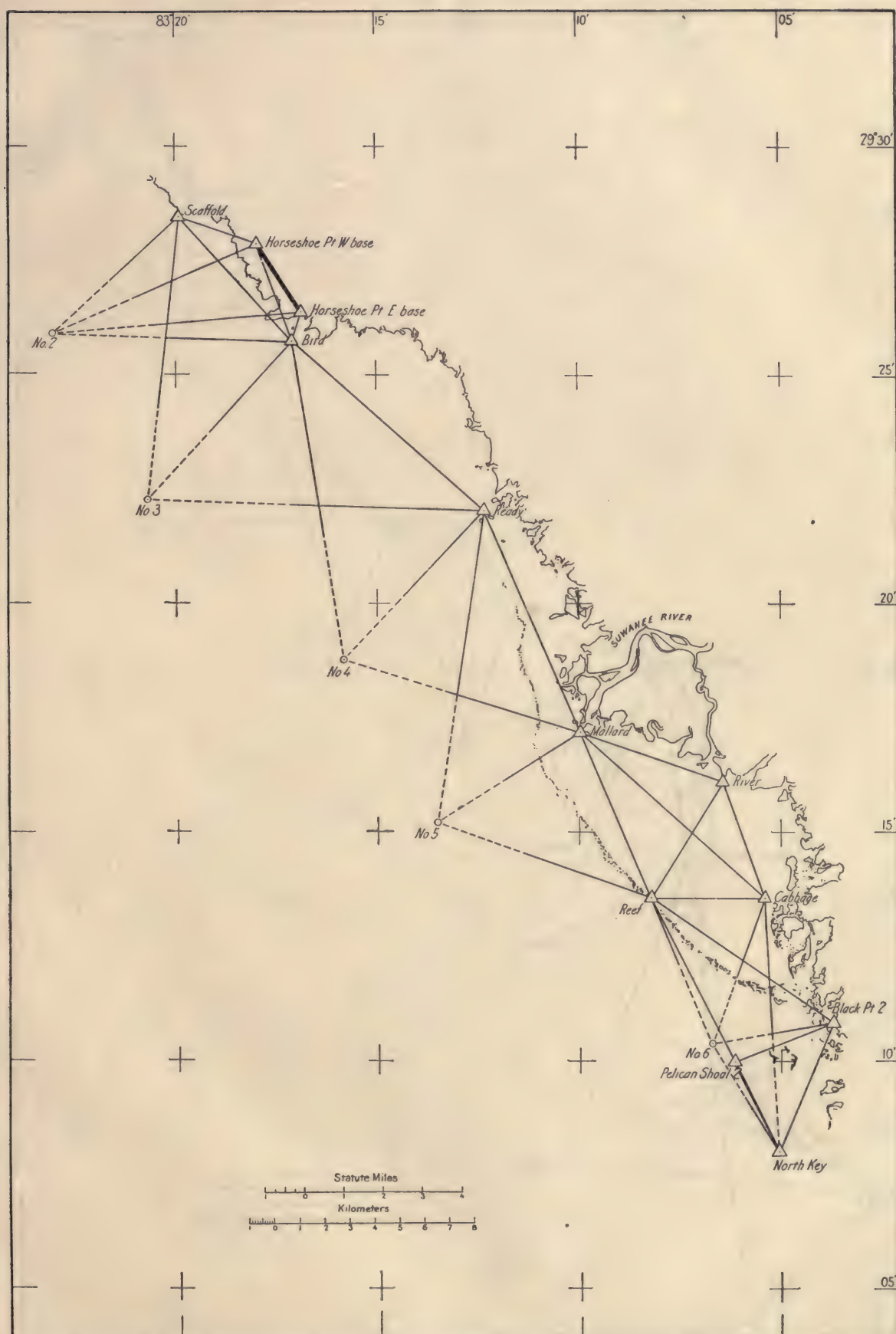




TRIANGULATION, GAINESVILLE TO CEDAR KEYS.



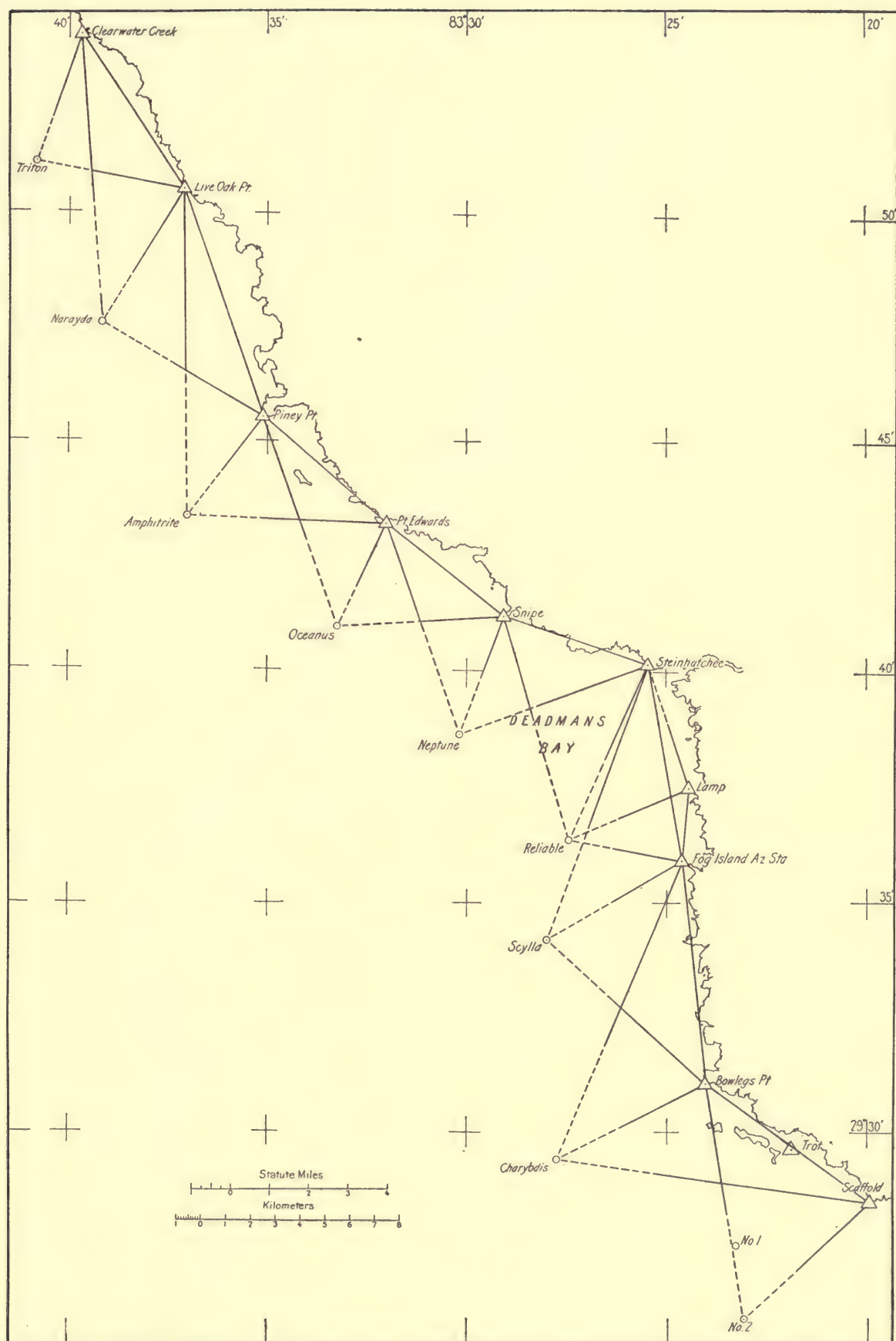




TRIANGULATION, CEDAR KEYS TO NUMBER 2-SCAFFOLD.



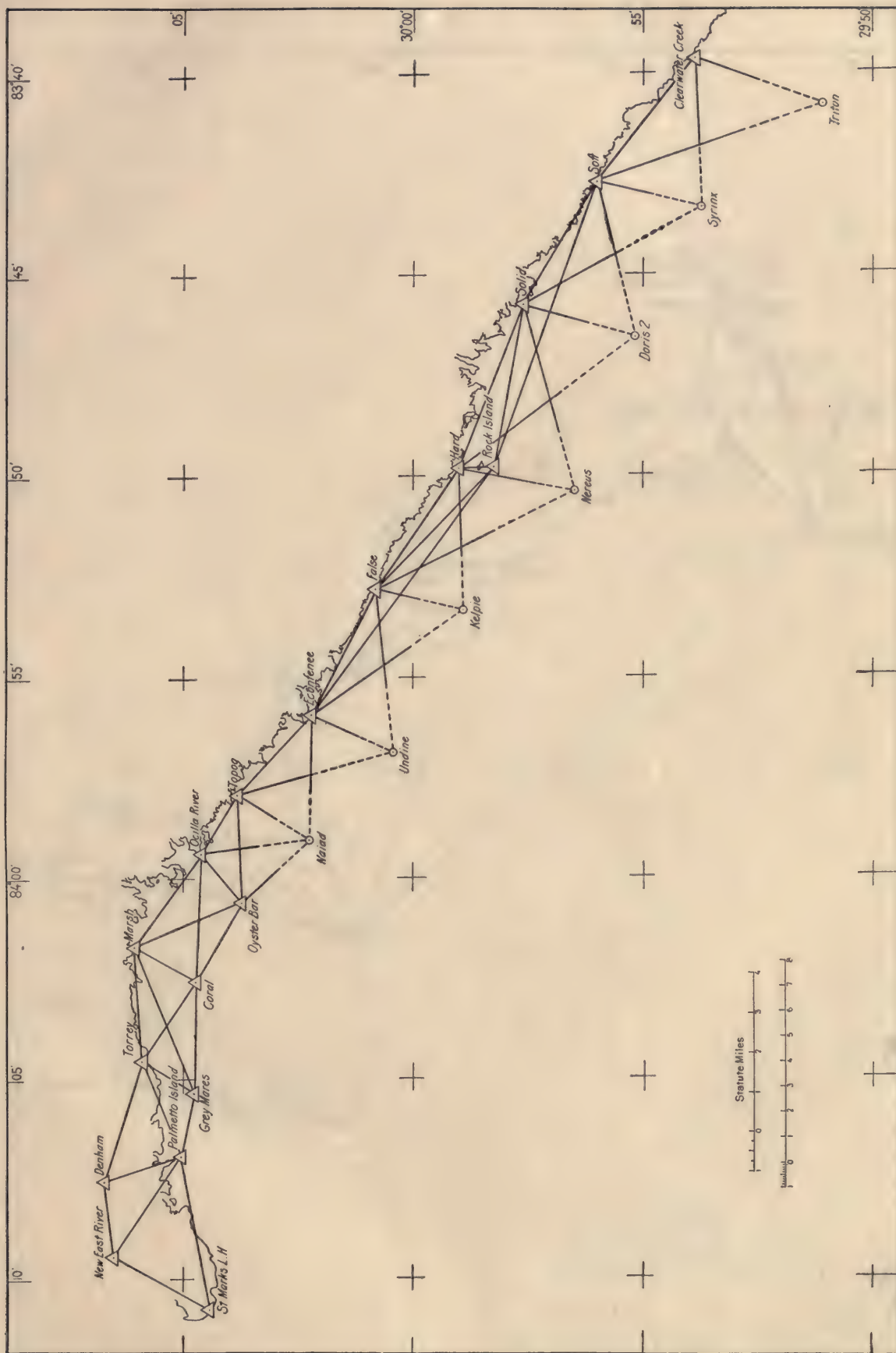




TRIANGULATION, NUMBER 2-SCAFFOLD TO TRITON-CLEARWATER CREEK.



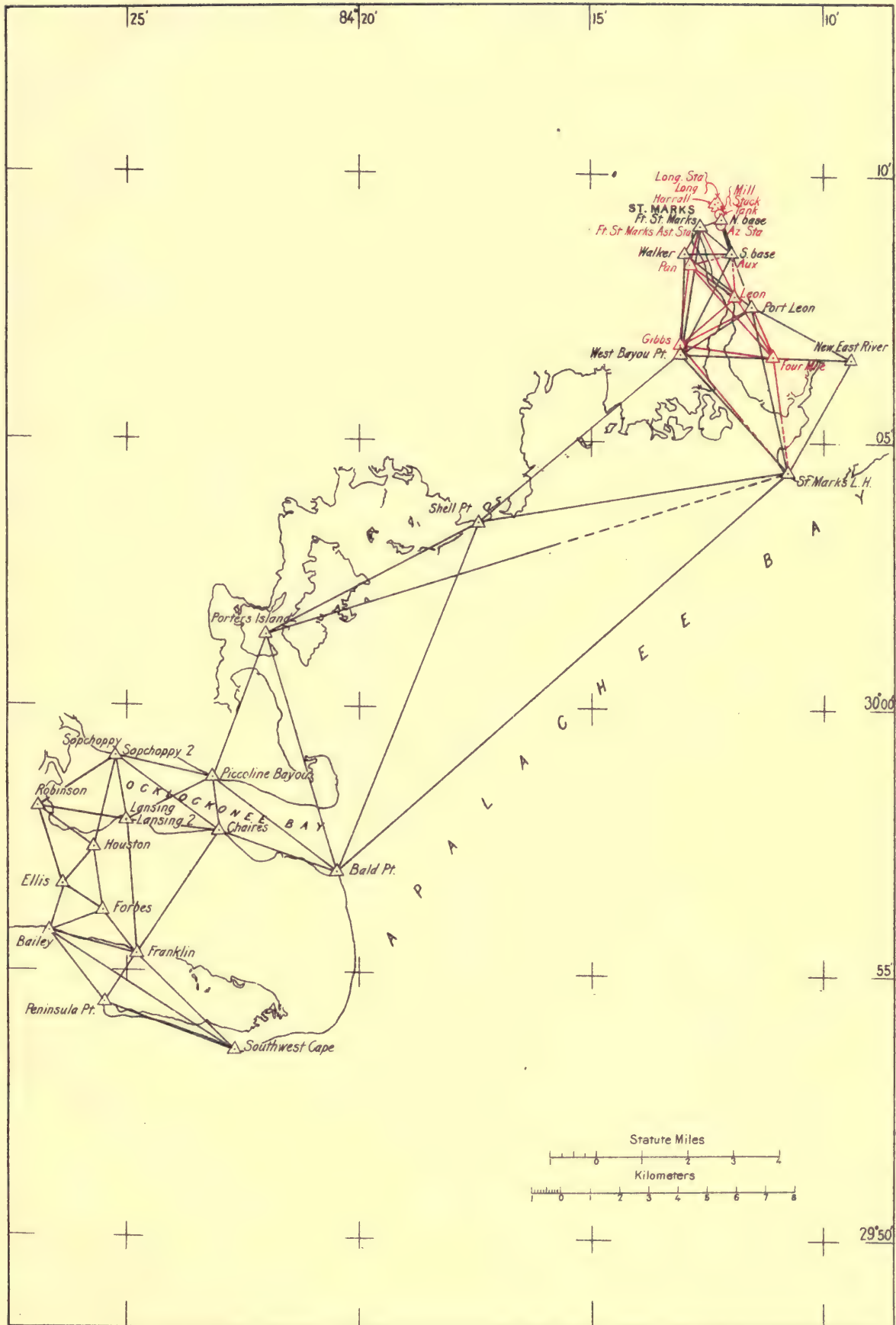




TRIANGULATION, TRITON-CLEARWATER CREEK TO ST. MARKS RIVER.





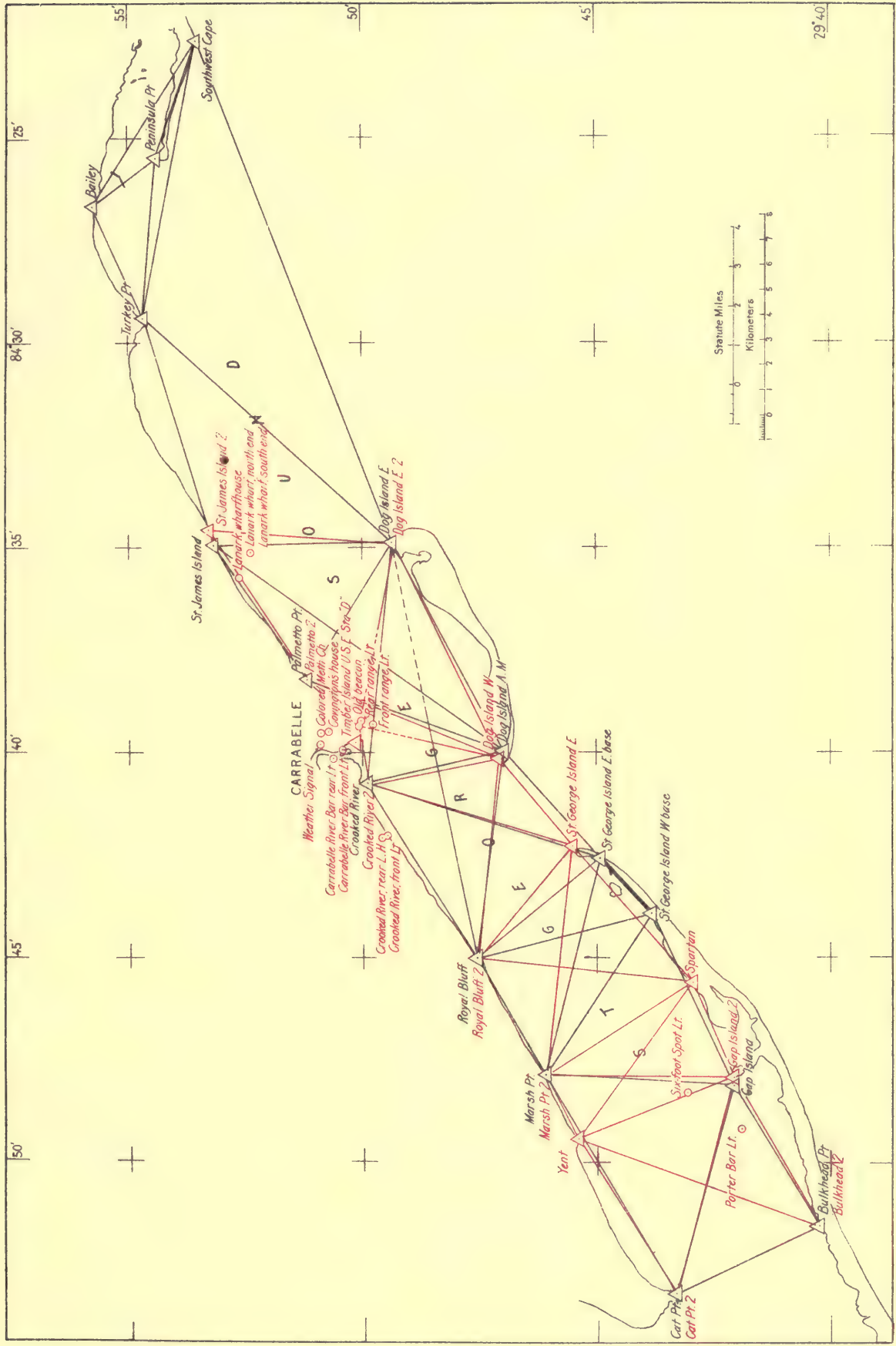


ENGRAVED AND PRINTED BY THE U.S. GEOLOGICAL SURVEY

TRIANGULATION, ST. MARKS RIVER TO ST. GEORGE SOUND.







ENGRAVED AND PRINTED BY THE U.S. GEOLOGICAL SURVEY

TRIANGULATION. ST. GEORGE SOUND.

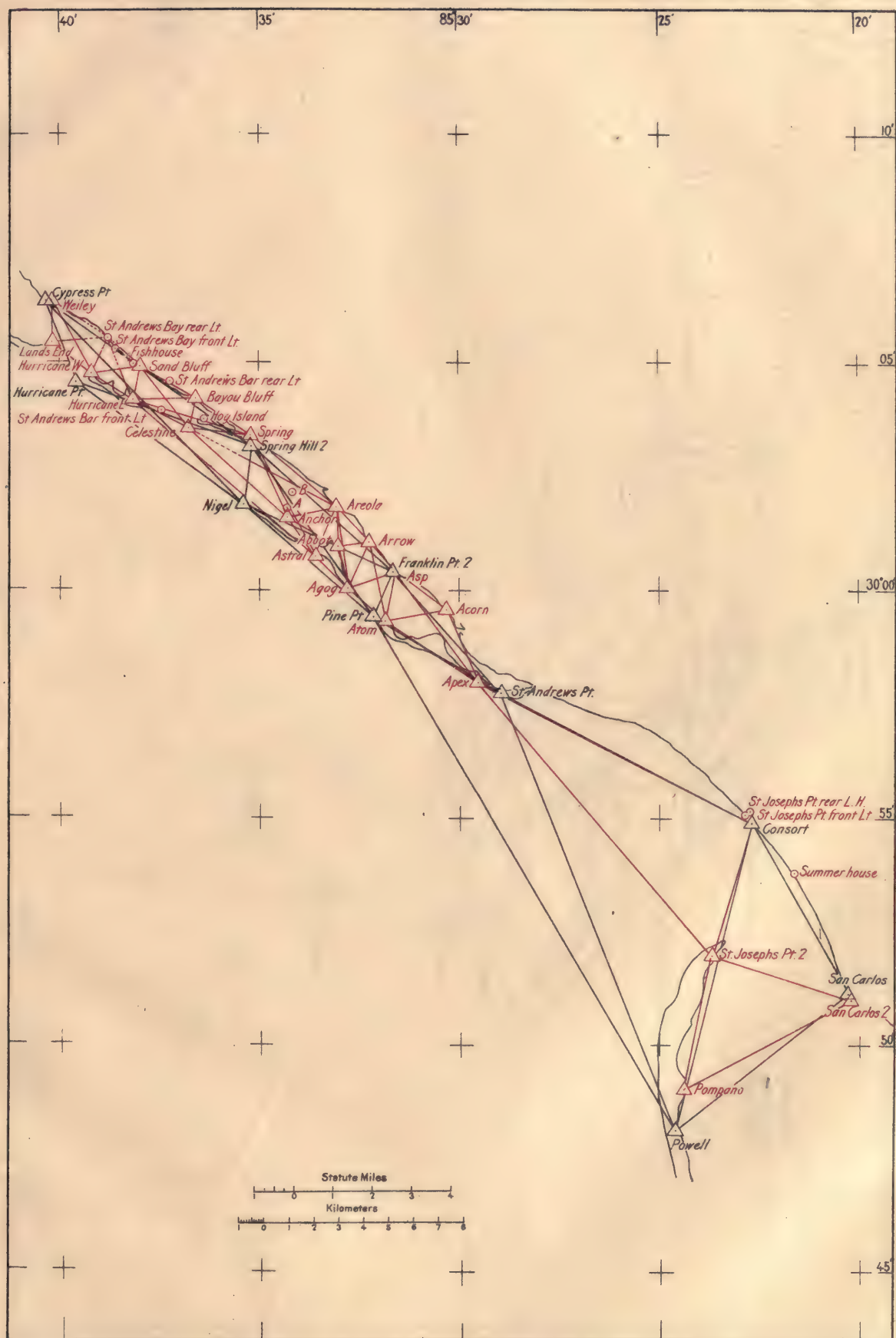




TRIANGULATION. APALACHICOLA BAY TO ST. JOSEPHS BAY





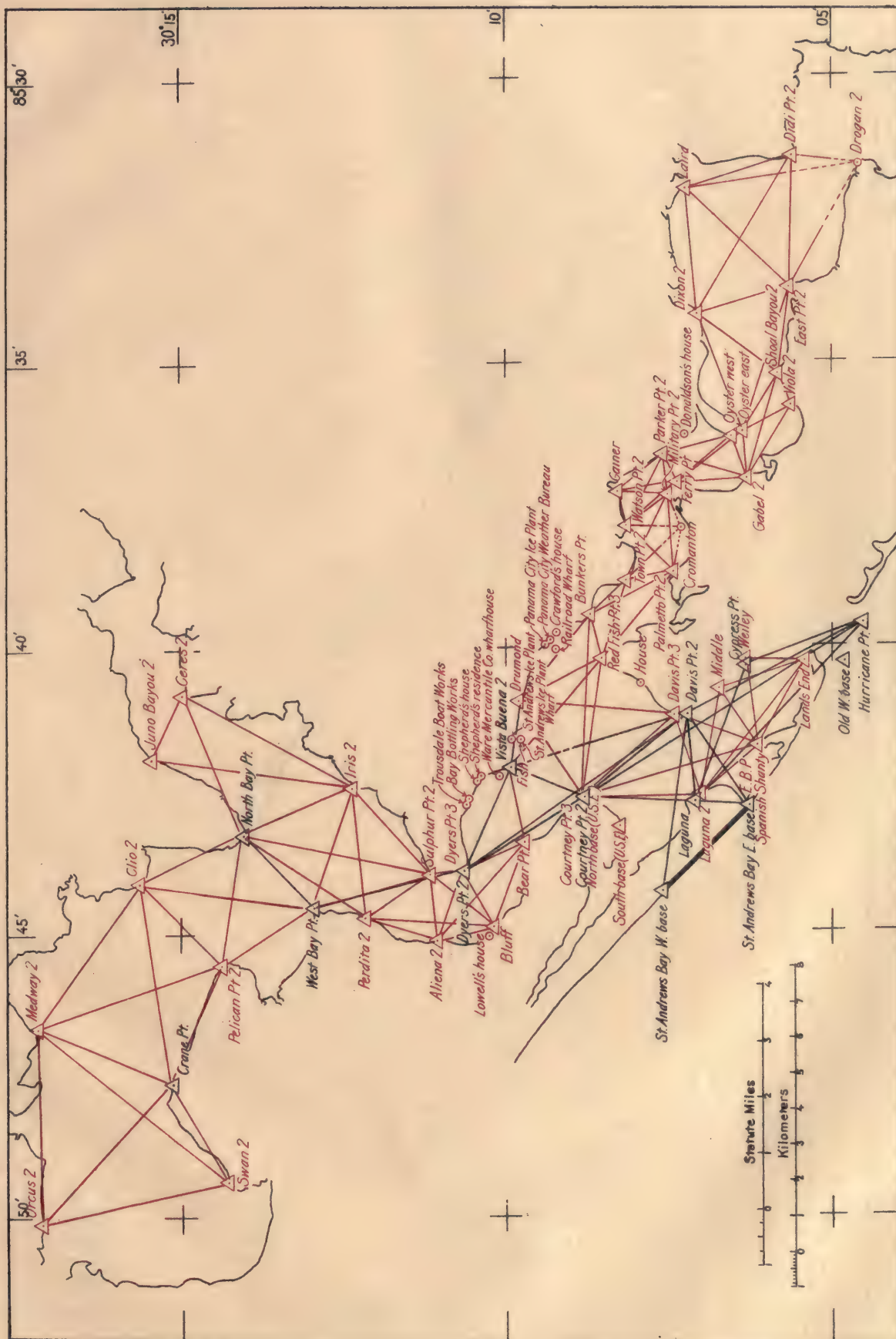


ENGRAVED AND PRINTED BY THE U.S. GEOLOGICAL SURVEY

TRIANGULATION, ST. JOSEPHS BAY TO ST. ANDREWS SOUND.





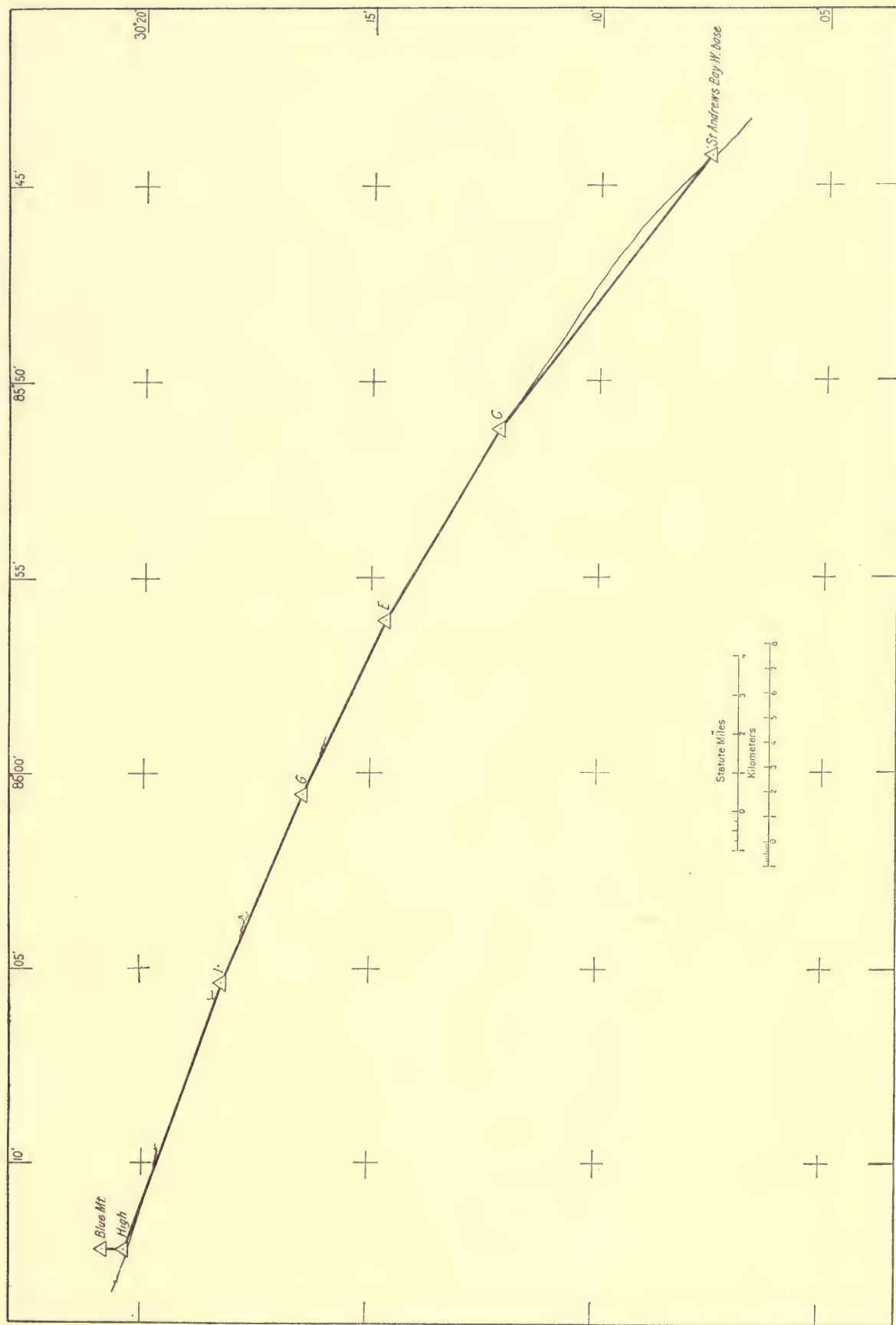


ENGRAVED AND PRINTED BY THE U.S. GEOLOGICAL SURVEY

TRIANGULATION, ST. ANDREWS BAY.



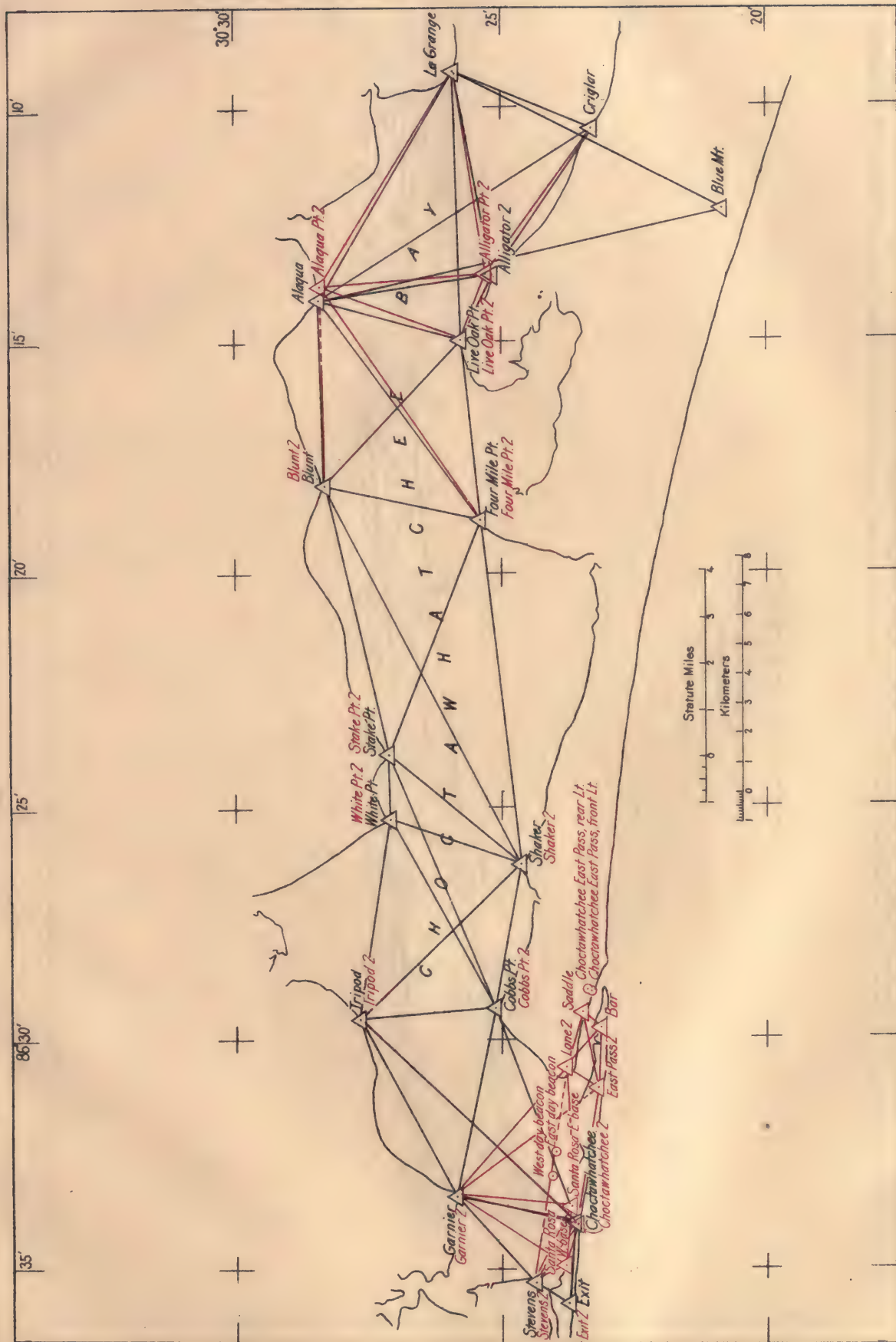




TRIANGULATION, ST. ANDREWS BASE TO BLUE MOUNTAIN.





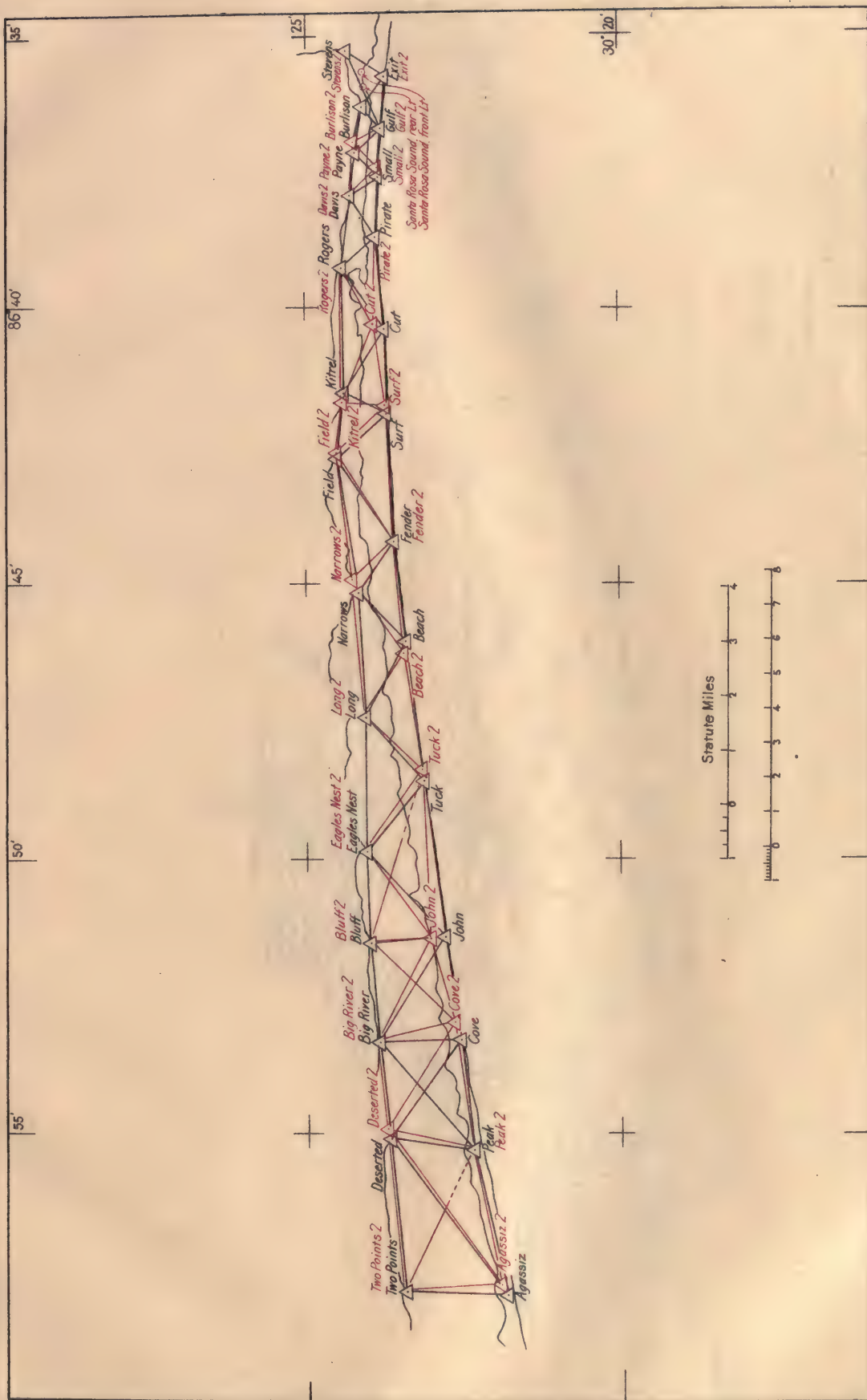


ENGRAVED AND PRINTED BY THE U.S. GEOLOGICAL SURVEY

TRIANGULATION, CHOCTAWHATCHEE BAY.







ENGRAVED AND PRINTED BY THE U. S. GEOLOGICAL SURVEY

TRIANGULATION, EASTERN END OF SANTA ROSA SOUND.

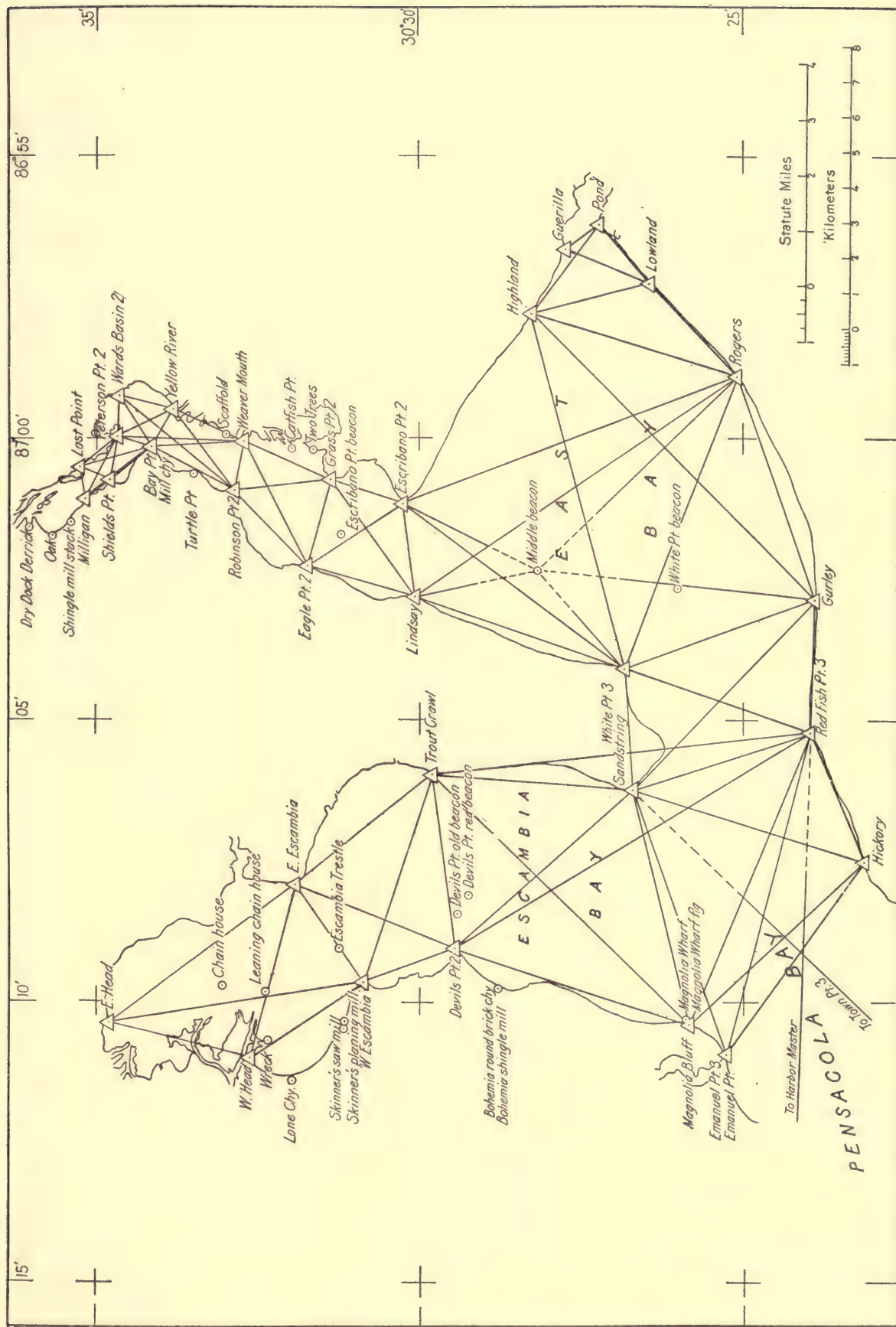




TRIANGULATION, WESTERN END OF SANTA ROSA SOUND AND SOUTHERN PART OF PENSACOLA BAY.



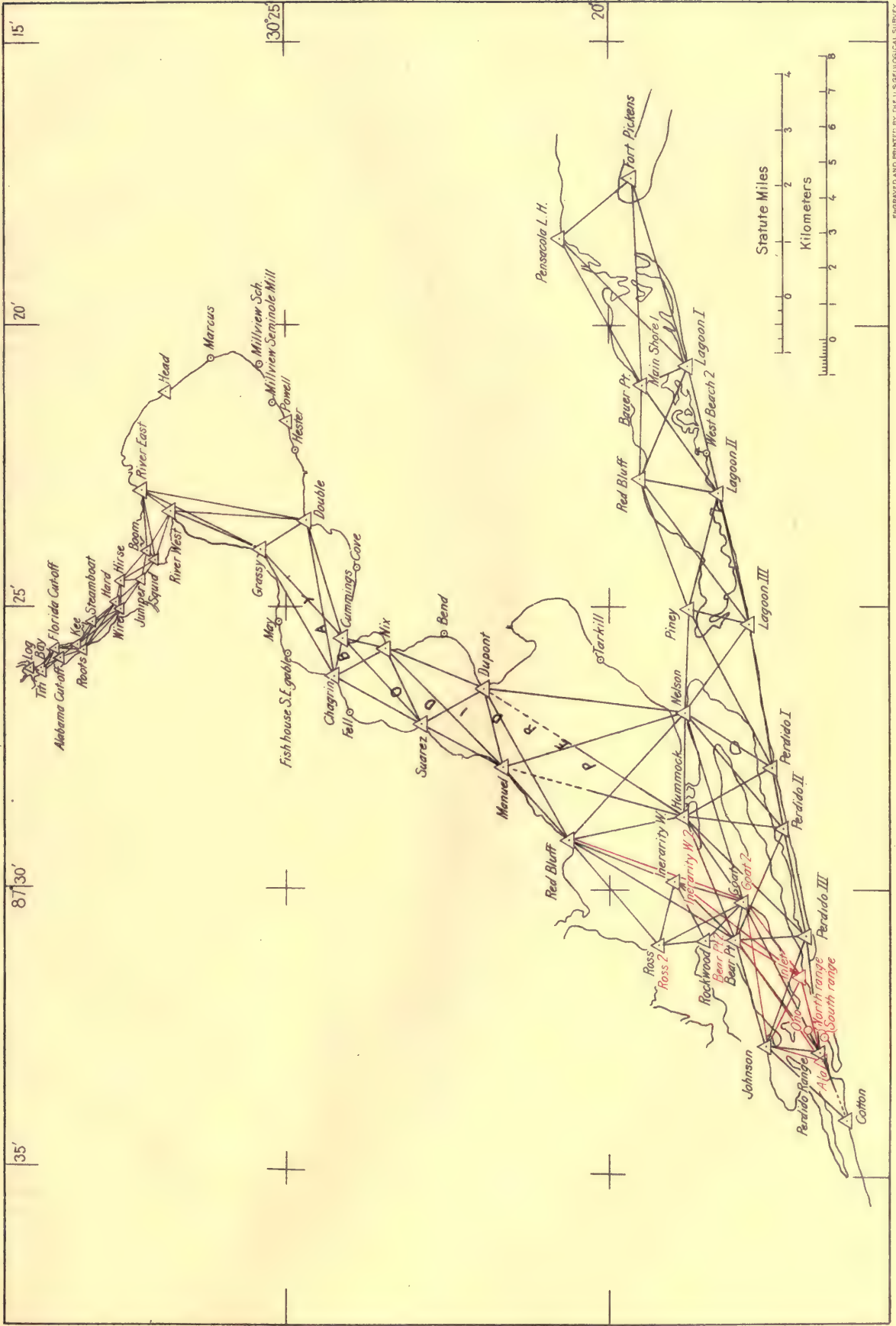




TRIANGULATION, ESCAMBIA BAY AND EAST BAY.







ENGRAVED AND PRINTED BY THE U.S. GEOLOGICAL SURVEY

TRIANGULATION, PERDIDO BAY.





# INDEX.

Station.	Position.	Description.	Sketch.	Station.	Position.	Description.	Sketch.
	Page.	Page.	Number.		Page.	Page.	Number.
A.....	14	69	7	B.....	14	69	7
A.....	44		22	B.....	44		22
Abbot.....	41	106	22	Bailey (Matlacha Pass).....	14	69	7
Acorn.....	41	106	22	Bailey (St. George Sound).....	38	100	19, 20
Agassiz.....	50	118	26, 27	Bailey's Bluff.....	34	94	12
Agassiz 2.....	51	120	26, 27	Bald.....	51	119	27
Agog.....	41	106	22	Bald Point.....	38	99	19
Ala (Ala.).....	59	135	29	Ball.....	22	80	10
Alabama Cut-off (Ala.).....	59	134	29	Ballast Point 2.....	22	80	10
Alafia 2.....	22	80	10	Ballast Point Hotel water tank..	25		10
Alafia River light.....	25		10	Bar.....	49	117	25
Alaqua.....	48	114	25	Barkley Point.....	53	124	27
Alaqua Point 2.....	48	115	25	Barkley Point 2.....	53	124	27
Alfred.....	35		14	Barracks flagstaff, Fort Bar-			
Aliena 2.....	45	110	23	rancas.....	55	128	27
Alligator.....	17	73	8	Barrancas wharf shed.....	55	128	27
Alligator 2.....	48	114	25	Barrel stake.....	35		14
Alligator Point 2.....	48	115	25	Basin Rock.....	32	89	14
Alpha.....	11		5	Battery Page.....	23		10
Amphitrite.....	36		17	Bauer Point.....	52	123	27, 29
Anchor.....	41	106	22	Bay.....	59	134	25
Anclote L. H.....	34		12	Bay Bottling Works chimney...	47		23
Anna Maria Key northwest				Bayonet Point.....	33	91	12
base.....	21	78	10	Bayou Bluff.....	41	105	22
Anna Maria Key southeast				Bayou Grande.....	53	124	27
base.....	19	76	9, 10	Bay Point.....	54	127	28
Anna Maria Key southeast				Bayport.....	33	91	13
base 2.....	20	77	9, 10	Beach.....	50	118	26
Ant. 2.....	22	79	10	Beach 2.....	52	122	26
Apalachicola.....	39	101	21	Beacon Rock.....	33	90	13
Apalachicola:				Bear Creek.....	29	84	11
Armory flagpole.....	43		21	Bear Island.....	32	90	13
Catholic Church spire.....	43	107	21	Bear Point (Ala.).....	58	131	29
Colored Baptist Church				Bear Point 2 (Ala.).....	59	134	29
spire.....	43		21	Bear Point (St. Andrews Bay)..	45	110	23
Convent, round tower.....	43		21	Belinda.....	14	68	7, 8
Episcopal Church spire.....	43		21	Bellevue.....	30	86	11, 12
Franklin Hotel flagpole.....	43		21	Bellevue Hotel west gable.....	30		11, 12
Front range light.....	43		21	Bellevue longitude station.....	30	86	11, 12
Jetty light.....	43		21	Bellevue water tower.....	30		11
Jetty, north end pole.....	43		21	Bell Haven Hotel cupola.....	20		9
Jetty, south end.....	43		21	Bend.....	60	135	29
Rear range light.....	43		21	Between.....	29	84	11
Water tower.....	43		21	Big Carlos.....	12	64	6
Weather signal.....	43		21	Big Hickory.....	12	64	6
White Baptist Church spire..	43		21	Bight.....	52	123	27
Apex.....	41	106	22	Big Marco.....	12	64	5, 6
Areola.....	41	106	22	Big Pass.....	34	93	12
Armory flagpole, Apalachicola..	43		21	Big River.....	50	118	26
Army pier, tower coal shed.....	23		10	Big River 2.....	51	121	26
Arrow.....	41	106	22	Bird.....	35	94	16
Asp.....	41	106	22	Bird Island.....	14	69	7
Astral.....	41	106	22	Bird Key.....	32	90	13
Astronomic station, Punta				Bird (Tampa Bay).....	28	81	10
Gorda.....	17	73	8	Black Point 2.....	31	87	14, 16
Astronomic station, Punta				Blacks Island.....	39	101	21
Rasa.....	16	73	7	Blacks Island A. M.....	42	107	21
Atom.....	41	106	22	Blind Key.....	33	92	12
A (U. S. E.).....	44	107	21	Blind Pass.....	12	66	7
Aux.....	38	99	19	Blue Mountain.....	48	115	24, 25

Station.	Position.	Description.	Sketch.	Station.	Position.	Description.	Sketch.
	Page.	Page.	Number.		Page.	Page.	Number.
Bluff (St. Andrews Bay).....	45	110	23	Carrabelle—Continued.			
Bluff (Santa Rosa Sound).....	50	118	26	Old outer beacon.....	41		20
Bluff 2.....	51	121	26	Weather signal.....	42		20
Blunt.....	48	114	25	Carrabelle River Bar front range			
Blunt 2.....	48	115	25	light.....	42		20
Boca Captiva.....	13	66	7	Carrabelle River Bar rear range			
Boca Grande.....	13	66	7, 8	light.....	42		20
Boca Grande, City lookout.....	20		8	Cates.....	11		4
Boca Grande, long railroad pier,				Catfish Point.....	57	130	28
end.....	17		7, 8	Catfish Point (U. S. E.).....	22	80	10
Boca Nueva.....	19	76	8	Catholic Cathedral dome, Tam-			
Boca Nueva 2.....	18		8	pa.....	26		10
Bocilla.....	18	74	8	Catholic Church spire, Apalach-			
Bocillas.....	13	66	7, 8	icola.....	43	107	21
Bohemia, round brick chimney..	56	129	28	Catholic Church spire, Port			
Bohemia shingle-mill stack.....	56	129	28	Tampa.....	27		10
Bolees Creek.....	20	77	9	Cat Point.....	39	101	20, 21
Boom.....	59	133	29	Cat Point 2.....	40	103	20, 21
Bowditch Point 2.....	12	65	6	Cattle dock, end, Punta Gorda..	17		8
Bower.....	50	118	27	Caucus Cut front range light....	55		27
Bowlegs.....	19	76	9	Caucus Cut rear range light.....	55		27
Bowlegs Point.....	36	95	17	Caximbas.....	12	64	5
Braidentown electric power-				Cedar.....	28	82	11
house stack.....	23		10	Cedar Keys lighthouse.....	31		14
Braidentown standpipe.....	23		10	Cedar Point (Apalachicola Bay)	39	101	21
Bratton's, Mrs., house, south				Cedar Point (Sarasota Bay).....	19	76	9
chimney.....	21		9	Cedar Point 2.....	20	77	9
Brewery tower, Ybor City.....	27		10	Cedar Point (U. S. E.).....	22	79	10
Bronson.....	31	87	15	Celestine.....	41		22
Brown.....	14	69	7	Central Avenue Church spire,			
Bruce.....	13	67	8	Tampa.....	26		10
Brunsmann's, A. G., house chim-				Ceres 2.....	45	110	23
ney.....	21		9	Chagrin (Ala.).....	58	132	29
Bulkhead 2.....	40	103	20, 21	Chain house, east gable.....	57	130	28
Bulkhead Cut front range light..	43		21	Chaires.....	38	100	19
Bulkhead Cut rear range light..	43		21	Charlotte Harbor:			
Bulkhead Point.....	39	101	20, 21	Cattle dock, end.....	17		8
Bunkers Point.....	46	111	23	Church spire.....	18		8
Burlison.....	51	119	26	Lighthouse.....	15		8
Burlison 2.....	52	123	26	Charlotte Harbor and Northern			
Burslem (U. S. E.).....	24		10	Railway:			
B (U. S. E.).....	44	107	21	East drawbridge, east end..	20		8
Buttonwood (Lemon Bay).....	18	74	8	Long trestle, east end.....	20		8
Buttonwood (Matlacha Pass)...	14	69	7	Long trestle, west end.....	20		8
				West drawbridge, east end..	20		8
C.....	48	115	24	Charybdis.....	36		17
C.....	14	70	7	Chassahowitzka Point.....	32	90	13
Cabbage.....	35	94	16	Chico.....	53	124	27
Cage.....	35		14	Chico flagstaff.....	56	129	27
Cage stake.....	34		14	Chico white chimney.....	56	129	27
Caloosa.....	12	65	7	Choctawhatchee.....	48	114	25
Caloosa (Caloosahatchee River)..	15	71	7	Choctawhatchee 2.....	49	116	25
Caloosa Hotel, Fort Myers.....	16	73	7	Choctawhatchee East Pass front			
Cape Haze.....	15	71	8	range light.....	49		25
Cape Romano.....	11	64	5	Choctawhatchee East Pass rear			
Cape Sable latitude station.....	11	62	4	range light.....	49		25
Cape Sable west base.....	11	62	4	City dock, end, Punta Gorda....	17		8
Cape St. George lighthouse.....	39		21	Clapp's Woods.....	53	124	27
Cape San Blas lighthouse.....	42		21	Clapp's Woods 2.....	55	128	27
Cape San Blas lighthouse (old				Clearwater bluff.....	29	84	11, 12
tower).....	39		21	Clearwater Creek.....	36	96	17, 18
Captiva.....	12	66	7	Clearwater Harbor astronomic			
Captiva Pass.....	15	72	7	station.....	29	84	11, 12
Carrabelle:				Clearwater latitude station.....	30	86	11, 12
Colored Methodist Church..	42		20	Clearwater water tower, Col.			
Covington's house, west				Scott's estate.....	30		11, 12
chimney.....	42		20	Clio 2.....	45	109	23



Station.	Position.	Description.	Sketch.	Station.	Position.	Description.	Sketch.
	Page.	Page.	Number.		Page.	Page.	Number.
Clower.....	18	75	9	Daughtry Island southwest base	32	88	14
Club House flagstaff, St. Petersburg.....	24		10	Dave.....	22	80	10
Clump.....	56	129	27	Davis.....	51	119	26
Cobbs Point.....	48	114	25	Davis 2.....	52	122	26
Cobbs Point 2.....	49	116	25	Davis Point 2.....	45	108	23
Cockroach (U. S. E.).....	22	79	10	Davis Point 3.....	46	111	23
Colclough Hill.....	31	86	15	Day.....	31	86	15
Colored Baptist Church spire, Apalachicola.....	43		21	Dead Oak Point.....	39	101	21
Colored church spire, Pensacola.....	56	129	27	Deer.....	14	69	7
Colored Methodist Church, Carrabelle.....	42		20	Deer Island.....	33	91	12
Commandant's cupola.....	55	128	27	Deer Point 2.....	49	117	27
Consort.....	40	102	22	Deer Point beacon.....	51		27
Convent dome, Tampa.....	26		10	Demorest.....	15	72	7
Convent round tower, Apalachicola.....	43		21	Denham.....	37	97	18
Coon Key.....	11	63	5	Depot Key.....	32	89	14
Cooper.....	13	67	8	Depot Key azimuth station.....	34	94	14
Cooper, 1909.....	15	72	8	Deserted.....	50	118	26
Coral.....	11	63	5	Deserted 2.....	51	121	26
Coral (Charlotte Harbor).....	19	76	8	Detroit House tower, St. Petersburg.....	24		10
Coral Rock.....	33	91	12, 13	Devils Elbow (U.S.E.).....	29	84	11
Coral (south of Apalachee).....	37	97	18	Devils Point 2.....	53	125	28
Cormorant Rock.....	33	92	14	Devils Point old beacon.....	57		28
Cortez.....	20	77	9	Devils Point red beacon.....	57		28
Cotton (Ala.).....	57		29	Didi Point 2.....	46	113	23
Cottrell.....	31	88	14	Dixon 2.....	46	113	23
Courthouse dome, Tampa.....	26		10	Doctors Pass.....	12	64	6
Courtney Point 2.....	45	108	23	Dog.....	22	81	10
Courtney Point 3.....	45	110	23	Dog Island A. M.....	39	101	20
Cove (Perdido Bay).....	60	135	29	Dog Island east.....	39	101	20
Cove (Santa Rosa Island).....	50	118	26	Dog Island east 2.....	41	104	20
Cove 2.....	51	121	26	Dog Island west.....	40	104	20
Covington's house, west chimney, Carrabelle.....	42		20	Donaldson house west chimney.....	47		23
Crab.....	28	82	11	Doris 2.....	36		18
Crane Island.....	32	89	14	Dorr.....	14	68	7
Crane Point.....	45	108	23	Double.....	58	133	29
Crawford's house, center gable.....	47		23	Double (Boca Ceiga Bay).....	28	82	11
Crawl Point, peak of square roof.....	30		11	Double 2.....	29	85	11
Creek.....	28	83	11	Dredged day beacon.....	34		14
Creek (Santa Rosa Sound).....	50	118	27	Drogan 2.....	46	113	23
Creek 2.....	51	120	27	Drumond.....	46	111	23
Crematory stack, Tampa.....	26		10	Dry Dock derrick.....	57	130	28
Criglar.....	48	114	25	Dupont.....	58	132	29
Cromanton.....	46		23	D (U.S.E.).....	44		21
Crooked River.....	39	101	20	Dutton.....	31	87	15
Crooked River 2.....	40	104	20	Dyers Point 2.....	45	108	23
Crooked River front range light.....	42		20	Dyers Point 3.....	45	110	23
Crooked River rear range L. H.....	42		20	E.....	48	115	24
Crow.....	28	82	11	Eagle Point.....	39		21
Crystal Reef.....	32	89	13	Eagle Point 2.....	42	107	21
Cummings.....	58	132	29	Eagle Point 2.....	54	127	28
Curlew.....	34	93	12	Eagle's Nest.....	50	118	26
C (U. S. E.).....	44		21	Eagle's Nest 2.....	51	121	26
Cut.....	19	76	9	East day beacon.....	49		25
Cut (Santa Rosa Island).....	50	119	26	East drawbridge, east end, Charlotte Harbor & Northern Ry.....	20		8
Cut 2.....	52	122	26	East elevator, end of dock, Port Tampa.....	27		10
Cute.....	28	83	11	East Escambia.....	54	125	28
Cutter.....	28	82	11	East Head.....	54	125	28
Cypress Point.....	40	102	22, 23	East Jetty.....	16	73	7
D.....	44		21	East Pass 2.....	49	117	25
Dana.....	13	66	8	East Point 2.....	46	113	23
Darling.....	14	68	7, 8	E. B. P.....	47	113	23
Daughtry Island northeast base.....	31	88	14	Econfenee.....	36	96	18
				Edison.....	15	70	7

Station.	Position.	Description.	Sketch.	Station.	Position.	Description.	Sketch.
	Page.	Page.	Number.		Page.	Page.	Number.
Edison's house.....	16	73	7	Fort Barrancas front range light.....	55		27
Edison's laboratory.....	16	73	7	Fort Barrancas range tower.....	55		27
Egmont Key landing, tower on pavilion.....	23		10	Fort Dade flagstaff.....	23		10
Egmont Key lighthouse.....	21		10	Fort Dade, power-house black stack.....	23		10
Egmont Key, pilots' lookout.....	23		10	Fort Dade, top of water tank.....	23		10
Elbow Key.....	33	91	12	Fort de Sota flagstaff.....	24		10
Electric power house stack, Port Tampa.....	27		10	Fort de Sota, power-house black stack.....	24		10
Electric power house stack, Tampa.....	26		10	Fort de Sota, water tank.....	24		10
El Gabo.....	13	66	8	Fort McRee.....	53	124	27
Ellis.....	38	100	19	Fort McRee Cut-off rear range light.....	55		27
Emanuel Point.....	53	124	27, 28	Fort McRee flagstaff.....	52		27
Emanuel Point 3.....	53	124	27, 28	Fort McRee water tank.....	55		27
Entrance.....	49	117	27	Fort Myers:			
Entrance 2.....	51	119	27	Caloosa Hotel.....	16	73	7
Episcopal Church spire, Apalachicola.....	43		21	Methodist Church tower.....	16	73	7
Episcopal Church spire, Pensacola.....	56	129	27	Parker's house.....	16	73	7
Episcopal Church spire, Tampa.....	26		10	Fort Pickens.....	52	123	27, 29
Escambia trestle, northeast chimney.....	57	129	28	Fort Pickens water tank.....	55		27
Escribano Point 2.....	54	126	28	Fort St. Marks.....	37	98	19
Escribano Point beacon.....	57	130	28	Fort St. Marks astronomic station.....	37	99	19
Eureka.....	13	67	8	Four Mile.....	37	98	19
Exit.....	47	114	25, 26	Four Mile Point (Caloosahatchee River).....	15	70	7
Exit 2.....	49	117	25, 26	Four Mile Point (Choctawhatchee Bay).....	48	114	25
Experimental.....	15	71	7	Four Mile Point 2.....	48	115	25
Experimental station house.....	16	73	7	Franklin.....	39	100	19
Extra.....	28	82	11	Franklin Hotel flagpole, Apalachicola.....	43		21
Faint.....	28	82	11	Franklin Point 2.....	40	102	22
Fair Point.....	53	124	27	Frazier's Beach, north house chimney.....	27		10
Fair Point 2.....	52	124	27	Freeland.....	11	63	5
Fair Point 3.....	53	124	27	Front range light, Apalachicola.....	43		21
Fair Point 1910.....	55	128	27	Front range light, new red.....	42		20
Fair Point beacon.....	56		27	Fulford's, William, house south chimney.....	21		9
False.....	36	96	18	G.....	48	115	24
Fell (Ala.).....	60	135	29	Gabel 2.....	46	112	23
Fender.....	50	118	26	Gadsden 2.....	22	80	10
Fender 2.....	52	122	26	Gadsden Point light.....	22		10
Ferry Point.....	46	112	23	Gadsden (U. S. E.).....	25		10
Field.....	50	119	26	Gainer.....	46		23
Field 2.....	52	122	4	Gainesville courthouse spire.....	30		15
Fig.....	11	63	6	Gap Island.....	39	101	20
Fire.....	11	63	5	Gap Island 2.....	40	103	20
First Presbyterian Church spire, Tampa.....	26		10	Garnier.....	48	114	25
Fish.....	47	113	23	Garnier 2.....	49	116	25
Fisherman.....	28	82	11	Gasparilla.....	18	74	8
Fisherman (U. S. E.).....	30	85	11	Gasparilla 1909.....	19	77	8
Fish house gable.....	44		22	Gasparilla Island Concrete Works water tank.....	20		8
Fish house southeast gable (Ala.).....	60		29	Gasparilla Island old quarantine building flagstaff.....	17		7, 8
Fishing Point pavilion, north gable.....	20		9	Gasparilla Island rear range lighthouse.....	15		7, 8
Flagpole, Veteran City.....	30		11	Gibbs.....	37	98	19
Flat.....	18	74	8	Goat.....	58	131	29
Florida Cut-off.....	59	134	29	Goat 2.....	59	134	29
Flossy.....	11		5	Gomez.....	11		5
Fogartyville Episcopal Church spire.....	23		10	Gordon's Pass.....	12	64	6
Fog Island azimuth station.....	36	95	17	Grande.....	53	124	27
Forbes.....	38	100	19	Grape.....	14	69	7
Fort Barrancas, barracks flagstaff.....	55	812	27				



Station.	Position.	Description.	Sketch.	Station.	Position.	Description.	Sketch.
	Page.	Page.	Number.		Page.	Page.	Number.
Grass Point 2.....	54	127	28	I.....	48	115	24
Grassy (Ala.).....	58	132	29	Ice works tall chimney, Pensa-			
Grassy Point (Peace Creek).....	13	67	8	cola.....	56	129	27
Grassy Point 1909.....	15	72	8	Indian.....	28	82	11
Grassy Point (Santa Rosa				Indian Bluff.....	33	91	12
Sound).....	50	117	27	Indian Hill 2.....	22	79	10
Grassy Point 2.....	51	119	27	Indian Hill light.....	24		10
Grassy Point (Waccasassa Bay).....	32	89	14	Indian Rock.....	29	83	11
Green Point 2.....	39	101	21	Inerarity west.....	58	132	29
Green Springs, chimney Mrs.				Inerarity west 2.....	59	134	29
Cohen's house.....	27		10	Inglis flagstaff.....	34	94	14
Green Springs, top of water				Inlet.....	59	135	29
tank.....	27		10	Iris 2.....	45	109	23
Grey Mares.....	37	97	18	Iron water tank, Twelfth Ave.			
Guerrilla.....	54	126	28	and Twenty-first St., Ybor			
Gulf.....	51	119	26	City.....	27		10
Gulf 2.....	52	123	26	Iroquois.....	11		5
Gulf (Boca Ciega Bay).....	29	85	11				
Gull.....	14	68	7	Jacobs.....	18	74	8
Gun.....	22	81	10	Jetty light, Apalachicola.....	43		21
Gurley.....	54	126	28	Jetty, north end pole, Apalachi-			
				cola.....	43		21
Half Moon.....	34	92	14	Jetty, south end, Apalachicola.....	43		21
Half Moon Bar.....	32	89	13, 14	John.....	50	118	26
Hancock.....	15	70	7	John 2.....	51	121	26
Harbor Key 2.....	31	88	14	Johnson.....	12	64	5
Harbor Key 3.....	33	92	14	Johnson (Ala.).....	57	130	29
Harbor-master.....	53	124	27	Johnson's house north gable,			
Hard.....	36	96	18	Perico Island.....	22		10
Hard (Perdido River).....	59	133	29	Johns Pass.....	12	64	6
Harney Point.....	14	70	7	Johns Pass (U. S. E.).....	29	84	11
Harrall.....	38		19	Jose.....	56		27
Harris.....	14	70	7	Jug Point.....	15	71	7, 8
Harris house.....	16	73	7	Juniper (Ala.).....	59	133	29
Havelock.....	12	66	7	Juno Bayou 2.....	45	110	23
Head.....	60	135	29				
Herrings Bluff.....	33	90	13	Kay.....	30	85	11
Herron's house cupola, Pensa-				Kee.....	59	133	29
cola.....	56	129	27	Keg.....	18	75	9
Hester.....	60	135	29	Kelpie.....	36		18
Hickory.....	53	124	27, 28	Kennedy.....	17	73	8
High.....	48	115	24	Key.....	19	76	9
Highland.....	54	126	28	Key North.....	34	92	14
Hirse.....	59	133	29	Key Point.....	17	73	8
Hog.....	18	74	8	Kitrel.....	50	119	26
Hog Island.....	44	108	22	Kitrel 2.....	52	122	26
Hog Island north.....	33	91	12	Koonty.....	17	73	8
Homosassa Point.....	32	90	13				
Horse and Chaise.....	18	75	9	Lacosta Island, pilots' lookout..	17		7, 8
Horse Key.....	11	63	5	Lacosta Island, quarantine			
Horseshoe Point east base.....	36	95	16	building flagstaff.....	17		7, 8
Horseshoe Point west base.....	35	95	16	Lagoon.....	52	124	27
Hospital (Mullet Key) west				Lagoon I.....	52	123	27, 29
gable.....	24		10	Lagoon II.....	58	131	29
Hotel Cleveland, north gable.....	18		8	Lagoon III.....	58	131	29
Hotel cupola, Punta Gorda.....	15	72	8	La Grange.....	48	114	25
Hotel cupola, Punta Rasa.....	15	72	7	Laguna.....	45	108	23
House south of Red Fish Point,				Laguna 2.....	46	111	23
chimney.....	47		23	Laird.....	46	113	23
Houston.....	38	100	19	Lamp.....	36	95	17
Huckleberry Camp.....	18	75	9	Lanark, bathhouse wharf on			
Hull.....	18	75	9	reef, north end.....	42		20
Hummock.....	58	131	29	Lanark, bathhouse wharf on			
Hunt.....	34	92	14	reef, south end.....	42		20
Hurricane East.....	41	105	22	Lanark, flag on wharf house...	42		20
Hurricane Point.....	40	102	22, 23	Lands end.....	41	105	22, 23
Hurricane West.....	41	105	22	Lane 2.....	49	117	25
Hyde Park schoolhouse, Tampa.	26		10	Lansing.....	38	100	19

Station.	Position.	Description.	Sketch.	Station.	Position.	Description.	Sketch.
	Page.	Page.	Number.		Page.	Page.	Number.
Lansing 2.....	38	100	19	Manatee 2.....	23	81	10
Las.....	14	69	7, 8	Manatee River Cut light.....	23		10
Last Point.....	55	128	28	Mangrove.....	19	76	9
Laurel.....	40	102	21	Mangrove Point.....	17		8
Leaning chain house, higher				Mangrove Point light.....	17		8
gable.....	57	130	28	Mangrove (U. S. E.).....	22	79	10
Lemon.....	18	74	8	Manuel (Ala.).....	58	132	29
Leon.....	37	98	19	Marcus.....	60	135	29
Life Saving Station, flagstaff...	55	128	27	Marine railroad stack.....	56	129	27
Lime Point 2.....	31	88	14	Marsh.....	50	118	27
Lindsay.....	54	127	28	Marsh 2.....	51	120	27
Little Carnos.....	12	64	6	Marsh (Apalachee Bay).....	37	97	18
Little Island.....	32	89	13, 14	Marshall (U. S. E.).....	24		10
Little Marco.....	12	64	6	Marsh Island.....	32	89	14
Little Pass.....	34	92	11, 12	Marsh Point (Caloosahatchee			
Little Rock.....	32	90	13	River).....	15	71	7
Little Sarasota.....	18	75	9	Marsh Point (St. George Sound)	39	101	20
Live Oak Point.....	36	96	17	Marsh Point 2.....	40	103	20
Live Oak Point (Charlotte				Mast.....	28	82	11
Harbor).....	13	67	8	Matlacha.....	14	68	7
Live Oak Point 1909.....	15	72	8	Maximo.....	29	84	10, 11
Live Oak Point (Choctawhat-				May (Ala.).....	60	135	29
chee Bay).....	48	114	25	McKay's Point 2.....	29		11
Live Oak Point 2.....	48	115	25	Medway 2.....	45	109	23
Llano.....	19	76	8	Mellie.....	15	71	7
Locust Point.....	13	67	8	Merchant.....	18	74	8
Locust Point 1909.....	15	72	8	Meridian.....	14	68	7
Log (Ala.).....	59	134	29	Methodist Church spire, Tampa.	26		10
Lone chimney.....	57	129	28	Methodist Church tower, Fort			
Lone Palmetto.....	30		11	Myers.....	16	73	7
Lone Pine.....	20	78	9	Michigan Avenue schoolhouse,			
Long.....	50	118	26	Tampa.....	26		10
Long 2.....	52	121	26	Middle.....	46	111	23
Long Bar Point.....	20	77	9	Middle (Peace River).....	13	67	8
Longboat.....	19	76	9	Middle beacon.....	54	126	28
Longboat 2.....	20	77	9	Middle Marsh.....	32	89	14
Longitude station, St. Marks...	38		19	Middle Point.....	12	65	7
Long Key.....	33	91	13	Middle Point 1909.....	16	72	7
Long phosphate elevator east				Middle Point (U. S. E.).....	16	73	7
gable, Port Tampa.....	27		10	Mikado.....	11		4, 5
Long phosphate elevator west				Military Point 2.....	46	112	23
gable, Port Tampa.....	27		10	Mill chimney.....	57	130	28
Long Reach.....	33	92	12	Milligan.....	54	128	28
Long, St. Marks.....	38	99	19	Mill, St. Marks.....	38		19
Long Shoal beacon.....	25		10	Millview schoolhouse flagstaff...	60		29
Long trestle, east end, Charlotte				Millview Seminole Mill smoke-			
Harbor & Northern Ry.....	20		8	stack.....	60		29
Long trestle, west end, Char-				Moody's house cupola.....	24		10
lotte Harbor & Northern Ry..	20		8	Morrison Villa tower, Tampa...	26		10
Lopez.....	18	74	8	Mound (Boca Ceiga Bay).....	28	82	11
Lowell's house chimney.....	47		23	Mound (Charlotte Harbor).....	13	66	8
Lowland.....	54	126	28	Mound Key.....	12	65	8
Lowne (U. S. E. east base).....	25		10	Mound (Sarasota Pass).....	19	76	9, 10
Lucknow.....	11		4	Mound 2 (Sarasota Pass).....	19	77	9, 10
Lucknow (Pine Island).....	13	66	7	Mud.....	34	93	12
Lumber.....	14	68	7	Mullet Key Shoal light.....	22		10
Machine shops, west gable,				Murphy.....	31	86	15
Veteran City.....	30		11	Muscogee outer gable, Pensacola.	56	129	27
Magnetic azimuth station, St.				Myakka.....	13	67	8
Marks.....	38	99	19	Naiad.....	37		18
Magnolia Bluff.....	53	125	28	Narayda.....	36		17
Magnolia wharf.....	56	129	28	Narrows.....	29	83	11
Magnolia wharf flagstaff.....	56	129	28	Narrows (Matlacha Pass).....	14	69	7
Mainland.....	32	89	14	Narrows (Santa Rosa Sound)...	50	118	26
Mainland east.....	32	89	14	Narrows 2.....	52	122	26
Main Shore 1.....	59		29	Navy Yard derrick.....	55	128	27
Mallard.....	35	94	16	Navy Yard flagstaff.....	55	128	72



Station.	Position.	Description.	Sketch.	Station.	Position.	Description.	Sketch.
	<i>Page.</i>	<i>Page.</i>	<i>Number.</i>		<i>Page.</i>	<i>Page.</i>	<i>Number.</i>
Navy Yard tallest big chimney.	55		27	Oyster Key.	12	64	6
Navy Yard water tank.	55		27	Oyster Reef B 3.	32	89	14
Navy Yard wharf.	52	123	27	Oyster Reef C.	32	89	14
Nell.	11		4	Oyster Reef south 2.	32	89	14
Nell (Sarasota Pass).	21	78	10	Oyster west.	46	112	23
Nelson.	58	131	29				
Neptune.	36		17	Palm.	21	78	10
Nereus.	36		18	Palm 2.	21	79	10
New Alfred.	35		14	Palmetto.	13	67	8
New East River.	37	97	18, 19	Palmetto 2.	41	104	20
New Inlet 2.	40	103	21	Palmetto Church, tall thin spire.	23		10
New North.	35		14	Palmetto Island.	37	97	18
New Pass.	19	76	9	Palmetto Key.	34	93	12
New Pass 2.	20	78	9	Palmetto Point (Caloosahatchee River).	14	70	7
New Point.	13	67	8	Palmetto Point (St. George Sound).	39	101	20
New Reef.	33	90	13	Palmetto Point 2.	46	111	23
New Shoal.	35		14	Palmetto schoolhouse dome.	23		10
Nigel.	40	102	22	Palm Point.	11	62	4
Nix.	58	132	29	Pan.	37	98	19
No Name.	15	70	7	Panama City, ice-plant stack.	47		23
North.	35		14	Panama City, U. S. Weather Bureau signal.	47		23
North Anclote.	33	91	12	Parker Point 2.	46	112	23
North Anclote 2.	34	93	12	Parker's house, Fort Myers.	16	73	7
North base, St. Marks.	37	98	19	Pass.	28	52	11
North base (U. S. E.).	34		14	Pavilion Key.	11	63	5
North base (U. S. E.) (St. Andrews Bay).	47	113	23	Pavilion west gable, Veteran City.	30		11
North Bay Point.	45	108	23	Payne.	51	119	26
North Channel light.	24		10	Payne 2.	52	123	26
North Cut lower No. 10 light.	25		10	Peace Creek.	13	68	8
North end of cut.	21		9	Peace Creek light.	17		8
North Hog Island.	34	93	12	Peak.	50	118	26
North Key.	31	87	14, 16	Peak 2.	51	121	26
North Range.	59		29	Pelayo.	19	76	8
North Reef.	31	88	14	Pelican.	13	66	8
Northwest.	18	75	9	Pelican Point.	33	91	12
Northwest Cape.	11	62	4	Pelican Point 2.	45	109	23
Norwest.	35		14	Pelican Shoal 2.	31	88	14, 16
Number 1.	37		17	Peninsula Point.	39	101	19, 20
Number 2.	35		16, 17	Pensacola:			
Number 3.	35		16	Colored Church spire.	56	129	27
Number 4.	35		16	Episcopal Church spire.	56	129	27
Number 5.	35		16	Herron's house cupola.	56	129	27
Number 6.	35	94	16	Ice Works, tall chimney.	56	129	27
				L. H.	52		27, 29
Oak (Blackwater Bay).	57	130	28	Muscogee, outer gable.	56	129	27
Oak (Boca Ceiga Bay).	29	85	11	Post Office, north flagstaff.	56	129	27
Oak (Pensacola Bay).	56	129	27	Railroad-station cupola.	56	129	27
Oceanus.	36		17	Scandinavian Church spire.	56	129	27
Ocilla River.	37	97	18	Standpipe.	56	129	27
Odd Fellow.	30	86	15	Stevedores' flagstaff.	56	129	27
Oil tank, top (large yellow, east), Port Tampa.	27		10	Wells' chimney.	56	129	27
Old outer beacon, Carrabelle.	41		20	Wright's mill chimney.	56	129	27
Old (U. S. E.).	25		10	Pensacola Bay front range light.	55		27
Old west base.	46		23	Perdido I.	58	131	29
Ono.	60		29	Perdido II.	58	131	29
Orange grove.	33	91	12	Perdido III.	57	131	29
Orcus 2.	45	109	23	Perdido Range (Ala.).	57	130	29
Oso.	13	66	8	Perdita 2.	45	110	23
Outer beacon.	34		14	Perico.	21	78	10
Owl.	14	68	7	Perico 2.	21	79	10
Oyster.	28	81	11	Pete.	22	80	10
Oyster (San Carlos Bay).	14	69	7	Peterson Point 2.	54	128	28
Oyster 2.	29	84	11	Phosphate Works, long building			
Oyster Bar.	37	97	18	flagstaff, Punta Gorda.	17		8
Oyster Cove.	31	87	14, 15				
Oyster east.	46	112	23				

Station.	Position.	Description.	Sketch.	Station.	Position.	Description.	Sketch.
	Page.	Page.	Number.		Page.	Page.	Number.
Piccoline Bayou.....	38	99	19	Punta Gorda—Continued.			
Pickens (U. S. E.).....	52	123	(1)	Hotel cupola.....	15	72	8
Picnic Island.....	22	80	10	Phosphate works, long			
Pinafore.....	11		4	building flagstaff.....	17		8
Pine.....	14	69	7	Presbyterian Church spire..	17		8
Pinelos.....	21	78	10	Weather Bureau pole.....	17		8
Pinelos 2.....	22	79	10	Punta Rasa.....	12	65	7
Pine Point.....	40	102	22	Punta Rasa:			
Pines.....	29	83	11	Astronomic station.....	16	73	7
Piney.....	58	131	23	Front range light.....	16		7
Piney Point.....	36	95	17	Hotel cupola.....	15	72	7
Piney Point (Clearwater Har-				Rear range light.....	16		7
bor).....	33	91	12	Shultz' house, flagstaff .....	16	73	7
Piney Point (Peace River)....	13	67	8				
Pirate.....	51	119	26	Quarantine.....	51	119	27
Pirate 2.....	52	122	26	Quarantine building, tower on			
Placida.....	19	77	8	end of wharf.....	24		10
Plantation Hill.....	53	124	27	Quarantine station, high water			
Plaza Hotel, west flagpole.....	30		11	tank.....	24		10
Plow.....	19	76	8	Quarantine station, low water			
Point.....	28	81	10, 11	tank.....	24		10
Point Edwards.....	36	95	17	Queen.....	28	82	11
Point Pinelos light.....	24		10	Quick.....	11		4
Point Ybel 2.....	12	65	6, 7	Quick (Little Sarasota Bay)....	18	75	9
Polaris.....	29	83	11				
Pole.....	28	82	11	Raccoon Point.....	33	90	13
Pompano.....	42	107	21, 22	Ragged Island.....	32	90	13
Pond (East Bay).....	54	126	28	Railroad station cupola, Pensa-			
Pond (Pensacola Bay).....	52	123	27	cola.....	56	129	27
Pontiac.....	11		5	Railroad wharf, gable of freight			
Porpoise.....	18	74	8	house.....	47		23
Porter Bar light.....	43		20	Ranch.....	50	118	27
Porters Island.....	38	99	19	Ranch 2.....	51	120	27
Port Leon.....	37	97	19	Range.....	50	118	27
Port Tampa:				Range 2.....	51	120	27
Catholic Church spire.....	27		10	Ready.....	35	94	16
East elevator, end of dock..	27		10	Rear range light, Apalachicola..	43		21
Electric power house stack ..	27		10	Rear range light, new white .....	42		20
Long phosphate elevator,				Red Bluff.....	58	131	29
east gable.....	27		10	Red Bluff (Ala.).....	58	132	29
Long phosphate elevator,				Red Fish Point.....	14	69	7
west gable.....	27		10	Red Fish Point 3.....	53	125	28
Oil tank, top (large yel-				Red Fish Point 3.....	46	111	23
low, east).....	27		10	Reef.....	11	63	5
Water tank (red iron, head				Reef (Suwanee Sound).....	35	94	16
of slip).....	27		10	Reliable.....	36		17
West base (U. S. E.).....	27		10	Remains of day beacon.....	44		21
West elevator, end of dock..	27		10	Revenue flagstaff.....	55	128	27
Post-office building, central flag-				Rhodes.....	30	85	11
staff (west pole), Tampa.....	26		10	Rhodes house south gable look-			
Post-office north flagstaff, Pen-				out pole.....	30		11
sacola.....	56	129	27	Richard's house (The Gables)			
Powell (Perdido Bay).....	60	135	29	cupola.....	25		10
Powell (St. Josephs Bay).....	40	101	21, 22	River.....	35	94	16
Power-house stack, St. Peters-				River east.....	58	133	29
burg.....	24		10	River west (Ala.).....	59	133	29
Presbyterian Church spire,				Roach.....	21	78	10
Punta Gorda.....	17		8	Robert's house chimney.....	21		9
Price.....	35		14	Robinson.....	38	100	19
Prickly.....	30	85	11	Robinson Point 2.....	54	127	28
Prickly Point.....	29	83	11	Roche's house north gable,			
Pry.....	35		14	Useppa Island.....	17		7
Punta Gorda.....	13	66	8	Roche's water tank, Useppa			
Punta Gorda:				Island.....	16		7
Astronomic station.....	17	73	8	Roche's windmill, Useppa			
Cattle dock, end.....	17		8	Island.....	16		7
City dock, end.....	17		8	Rock Island.....	36	96	18

<sup>1</sup> This point is not shown on the sketches. It plots just north of Fort Pickens on sketch No. 27.



Station.	Position.	Description.	Sketch.	Station.	Position.	Description.	Sketch.
	Page.	Page.	Number.		Page.	Page.	Number.
Rockwood (Ala.).....	58	132	29	St. Vincent Point 2.....	40	102	21
Rocky Point, house chimney...	27		10	San Carlos.....	40	102	21, 22
Rocky Point (Lemon Bay).....	18	75	8, 9	San Carlos 2.....	42	107	21, 22
Rocky Point (Old Tampa Bay)...	22	81	10	Sand.....	34	92	14
Rocky Ridge.....	32	90	13	Sand Bluff.....	41	105	22
Rodgers.....	11	63	4	Sand (Boca Ceiga Bay).....	28	81	11
Rogers (East Bay).....	54	126	28	Sand Hill.....	50	118	27
Rogers (Santa Rosa Narrows)...	51	119	26	Sand Hill 2.....	51	120	27
Rogers 2.....	52	122	26	Sand Island Cut front range			
Roots (Ala.).....	59	133	29	light.....	44		21
Rosewood.....	31	87	15	Sand Island Cut rear range light.	44		21
Ross (Ala.).....	58	132	29	Sand Key north base.....	29	84	11, 12
Ross 2 (Ala.).....	59	134	29	Sand Key south base.....	29	83	11
Royal Bluff.....	39	101	20	Sands.....	29	83	11
Royal Bluff 2.....	40	104	20	Sand Shoal 1.....	32	89	14
Rubber.....	14	68	7	Sand String.....	53	125	28
Rylander's house.....	16	73	7	Sanibel.....	12	66	7
				Sanibel cast base.....	12	65	7
Sabine Hill.....	49	117	27	Sanibel Island lighthouse.....	16		7
Saddle.....	49	117	25	Sanibel west base.....	12	65	7
Sague.....	28	82	11	San Pedro 2.....	44	108	21
St. Andrews Bar front range				Santa Rosa 2.....	53	124	27
light.....	44		22	Santa Rosa east base.....	49	117	25
St. Andrews Bar rear range				Santa Rosa Sound front range			
light.....	44		22	light.....	49		26
St. Andrews Bay east base.....	45	108	23	Santa Rosa Sound rear range			
St. Andrews Bay front range				light.....	49		26
light.....	44		22	Santa Rosa west base.....	49	117	25
St. Andrews Bay rear range				Sarasota.....	19	75	9
light.....	41		22	Sarasota 2.....	20	78	9
St. Andrews Bay west base.....	45	108	23, 24	Sarasota Baptist Church spire..	20		9
St. Andrews flag, end of ice-				Sarasota Methodist Church			
plant wharf.....	47		23	spire.....	21		9
St. Andrews, ice-plant stack....	47	113	23	Sawmill.....	15	70	7
St. Andrews Point.....	40	102	22	Sawmill, tall stack, Central			
St. George Island east.....	40	104	20	Avenue and Polk Street,			
St. George Island east base.....	39	101	20	Tampa.....	26		10
St. George Island west base.....	39	101	20	Scaffold.....	35	95	16, 17
St. George light.....	43	107	21	Scaffold (Blackwater Bay).....	57	130	28
St. James City dock warehouse				Scandinavian Church spire,			
east gable.....	16		7	Pensacola.....	56	129	27
St. James Island.....	39	101	20	Schoolhouse cupola, St. Peters-			
St. James Island 2.....	41	105	20	burg.....	24		10
St. Joseph.....	40	101	21	Seylla.....	36		17
St. Joseph 2.....	42	107	21	Seaside.....	34	93	12
St. Joseph Flat.....	33	91	12	Section Post (concrete), M. C.			
St. Joseph Point 2.....	41	107	22	sec. 27, T. 42 S., R. 20 E.....	20		8
St. Joseph Point front range				Section Post (concrete), M. C.			
light.....	44		22	secs. 22 and 27, T. 42 S., R.			
St. Joseph Point rear range				20 E.....	20		8
lighthouse.....	44		22	Section Post (concrete), quar-			
St. Marks:				ter corner between secs. 22			
Lighthouse.....	37	97	18, 19	and 27, T. 42 S., R. 20 E.....	19		8
Long.....	38	99	19	Seminole.....	11	63	4, 5
Longitude station.....	38		19	Shaker.....	48	114	25
Magnetic azimuth station....	38	99	19	Shaker 2.....	48	116	25
North base.....	37	98	19	Shark.....	11	63	4
South base.....	37	98	19	Sharp.....	50	118	27
Stack.....	38	99	19	Sharp Point.....	51	120	27
Tank.....	38	99	19	Shell.....	19	76	9
St. Marks River east.....	43	107	21	Shell Bank.....	39	101	21
St. Petersburg:				Shell Point.....	32	89	13
Club House flagstaff.....	24		10	Shell Point (Apalachee Bay)...	38	99	19
Detroit House tower.....	24		10	Shell Point (Boca Ceiga Bay)...	28	81	10, 11
Power house stack.....	24		10	Shepherd's house highest chim-			
Schoolhouse cupola.....	24		10	ney.....	47		23
Sibley House tower.....	25		10	Shepherd's residence west chim-			
Waterworks standpipe.....	25		10	ney.....	47		23

Station.	Position.	Description.	Sketch.	Station.	Position.	Description.	Sketch.
	Page.	Page.	Number.		Page.	Page.	Number.
Shield's Point.....	54	128	28	Sulphur Point 2.....	45	110	23
Shingle mill stack.....	57	130	28	Summer house.....	44		22
Shoal.....	35		14	Summerlin.....	12	65	6, 7
Shoal Bayou 2.....	46	113	23	Surf.....	50	119	26
Shoal Point.....	13	67	8	Surf 2.....	52	122	26
Short.....	29	83	11	Sutherland.....	31	87	15
Shortest.....	29	83	11	Swan 2.....	45	109	23
Shultz' house flagstaff, Punta Rasa.....	16	73	7	Sweat.....	30	85	11
Sibley House tower, St. Petersburg.....	25		10	Sweat's fish-camp house, south gable, lookout pole.....	30		11
Six-foot Spot light.....	42		20	Sword Point.....	12	65	7
Skinner's planing-mill stack.....	57	129	28	Syrinx.....	36		18
Skinner's sawmill stack.....	57	129	28				
Slatts.....	35		14	Tampa:			
Small.....	51	119	26	Catholic Cathedral dome.....	26		10
Small 2.....	52	123	26	Central Avenue Church spire.....	26		10
Snake.....	28	82	11	Convent dome.....	26		10
Snake Key 2.....	31	88	14	Courthouse dome.....	26		10
Snead Point Shoal light.....	23		10	Crematory stack.....	26		10
Snipe.....	36	95	17	East base (U. S. E.).....	26		10
Soft.....	36	96	18	Electric power house stack.....	26		10
Solid.....	36	96	18	Episcopal Church spire.....	26		10
Sopchoppy.....	38	100	19	First Presbyterian Church spire.....	26		10
Sopchoppy 2.....	38	100	19	Hyde Park schoolhouse.....	26		10
South Anclote.....	33	91	12	Methodist Church spire.....	26		10
South base, St. Marks.....	37	98	19	Michigan Avenue schoolhouse.....	26		10
South base (U. S. E.).....	34	94	14	Morrison Villa, tower.....	26		10
South base (U. S. E.) (St. Andrews Bay).....	47	113	23	Post Office building, central flagstaff (west pole).....	26		10
South Cut lower No. 6 light.....	25		10	Sawmill, tall stack, Central Avenue and Polk Street.....	26		10
South Cut, upper No. 8 light.....	25		10	Tower, Whiting and Franklin Streets.....	26		10
Southeast Point.....	33	91	12, 13	West base (U. S. E.).....	26		10
South End.....	12	65	7	Yacht Club house flagstaff.....	25		10
South end of cut.....	21		9	Tampa Bay beacon No. 4.....	24		10
South Point.....	29	84	11	Tampa Bay Hotel, electric plant stack.....	26		10
South Point 2.....	31	88	14	Tampa Bay Hotel, north tower.....	26		10
South Point 3.....	33	92	14	Tampa Cut No. 2 light.....	25		10
South Range.....	60		29	Tampa Cut No. 4 light.....	25		10
South Reef.....	31	88	14	Tank, St. Marks.....	38	99	19
South St. Martin.....	33		12	Tarkill.....	60	135	29
Southwest Cape.....	39	101	19, 20	Taylor.....	34		14
Southwest Channel light.....	23		10	Terraceia.....	21	78	10
Spanish Sanitarium, south gable.....	25		10	Terraceia 2.....	21	79	10
Spanish Sanitarium, west tank.....	26		10	Terraceia Point No. 1 light.....	23		10
Spanish shanty.....	46	111	23	Thompson.....	29	83	11
Spartan.....	40	104	20	Tiger Point.....	33	91	12
Speedwell.....	18	74	8	Timber Island, U. S. E. Station D.....	42		20
Spring.....	41	105	22	Titi (Ala.).....	59	134	29
Spring Hill 2.....	40	102	22	Tobacco factory cupola, Ybor City.....	27		10
Squid (Ala.).....	59	133	29	Tom.....	19	76	9
Stack, St. Marks.....	38	90	19	Tomlinson.....	29	84	10, 11
Stake Point.....	48	114	25	Topog.....	37	96	18
Stake Point 2.....	48	116	25	Torrey.....	37	97	18
Stake, south end of 40-foot cut.....	22		10	Torrey (Charlotte Harbor).....	13	66	8
Standpipe, Pensacola.....	56	129	27	Torrey 1909.....	15	71	8
Steamboat.....	59	133	29	Tower, Whiting and Franklin Sts., Tampa.....	26		10
Steamer "Cool" wreck beacon.....	25		10	Town Point.....	53	124	27
Steinhatchee.....	36	95	17	Town Point 2.....	53	124	27
Stephens.....	19	76	9	Town Point 2.....	46	112	23
Stevedores' flagstaff, Pensacola.....	56	129	27				
Stevens (Choctawhatchee Bay).....	47	114	25, 26				
Stevens 2.....	49	116	25, 26				
Stevens (Clearwater Harbor).....	34	93	12				
Stump.....	28	82	11				
Stump Pass.....	18	74	8				
Stumps.....	50	118	27				
Suarez (Ala.).....	58	132	29				



Station.	Position.	Description.	Sketch.	Station.	Position.	Description.	Sketch.
	<i>Page.</i>	<i>Page.</i>	<i>Number.</i>		<i>Page.</i>	<i>Page.</i>	<i>Number.</i>
Town Point 3.....	53	124	27	Watson Point 2.....	46	112	23
Travers.....	14	70	7	Way Key, north base.....	31	88	14
Trepador.....	18	74	8	Way Key, south base.....	31	88	14
Tripod.....	48	114	25	Way Key, south base 2.....	31		14
Tripod 2.....	49	116	25	Weather Bureau pole, Punta			
Triton.....	36		17, 18	Gorda.....	17		8
Trot.....	37	98	17	Weather signal, Apalachicola.....	43		21
Trousdale Boat Works stack.....	47		23	Weather signal, Carrabelle.....	42		20
Trout.....	13	68	8	Weaver Mouth.....	54	127	28
Trout Crawl.....	53	125	28	Webb.....	18	75	9
Tuck.....	50	118	26	Weiley.....	41	105	22, 23
Tuck 2.....	51	121	26	Wells' chimney, Pensacola.....	56	129	27
Tuckers Island.....	32	90	13	West Bayou Point.....	37	98	19
Turkey Point.....	39	101	20	West Bay Point.....	45	108	23
Turn.....	31	87	15	West Beach 2.....	59		29
Turn beacon.....	34		14	West day beacon.....	49		25
Turn (Boca Ceiga Bay).....	27	81	10, 11	West drawbridge, east end,			
Turtle.....	29	84	11	Charlotte Harbor & North-			
Turtle Crawl.....	28	82	11	ern Ry.....	20		8
Turtle Creek.....	33	92	14	West electric car pole, end of			
Turtle Point.....	54	127	28	pier, Veteran City.....	30		11
Twice.....	28	83	11	West elevator, end of dock,			
Two Points.....	50	118	26, 27	Port Tampa.....	27		10
Two Points 2.....	51	120	26, 27	West Escambia.....	54	125	28
Two Trees.....	57	130	28	West Head.....	54	125	28
Tycoon.....	11		4	West Jetty.....	16	73	7
Undine.....	37		18	West Pass.....	40	102	21
Useppa Inn.....	15	71	7	West Pass 2.....	40	102	21
Useppa Island:				West Pass Cut, front range light.	44		21
Roche's house north gable.....	17		7	West Pass Cut, rear range light.	44		21
Roche's water tank.....	16		7	West Pass, old rear range.....	44		21
Roche's windmill.....	16		7	West Rock.....	33	91	13
Veteran City:				West Tampa Waterworks			
Flagpole.....	30		11	standpipe.....	27		10
Machine shops, west gable.....	30		11	Whale Key.....	20	77	9
Pavilion, west gable.....	30		11	White.....	12	65	7
West electric car pole, end				White Baptist Church spire,			
of pier.....	30		11	Apalachicola.....	43		21
Viola 2.....	46	112	23	White Point.....	48	114	25
Vista Buena 2.....	45	108	23	White Point 2.....	48	116	25
Waccasassa.....	31	87	15	White Point 3.....	54	126	28
Waccasassa Reef.....	32	89	14	White Point beacon.....	57	130	28
Wait (U. S. E.).....	29	85	11	Wiggins Pass.....	12	64	6
Walker.....	37	98	19	Willow Point.....	13	67	8
Wall's, Judge, house chimney.....	25		10	Windmill.....	34	94	14
Ward's Basin 2.....	54	127	28	Wire (Ala.).....	59	133	29
Warehouse on piles, west gable.....	21		9	Withlacoochee River light.....	35		14
Warehouse, outer end.....	44		21	Wreck.....	57	130	28
Ware Mercantile Co., wharf-				Wright's mill chimney, Pensa-			
house flagstaff.....	47		23	cola.....	56	129	27
Warrington:				Yacht Club house flagstaff,			
Catholic Church spire.....	55	128	27	Tampa.....	25		10
East base.....	53	124	27	Ybor City:			
National cemetery flagstaff.....	55	128	27	Brewery tower.....	27		10
West base.....	53	124	27	Iron water tank, Twelfth			
Water.....	34		14	Ave. and Twenty-first St.	27		10
Water tank (red iron, head of				Tobacco factory cupola.....	27		10
slip), Port Tampa.....	27		10	Water tank (tall iron),			
Water tank (tall iron), Ninth				Ninth and Fourteenth			
and Fourteenth Sts., Ybor				Sts.....	27		10
City.....	27		10	Yellow River.....	54	127	28
Water tower, Apalachicola.....	43		21	Yent.....	40	103	20
Waterworks standpipe, St. Pe-				Young.....	18	75	9
tersburg.....	25		10	Young 2.....	20	78	9
				Young (U. S. E.).....	25		10

























QB  
311  
U473  
1913  
C.1  
PASC

J.S. Coast and Geodetic  
Survey  
Geodesy

PLEASE DO NOT REMOVE  
CARDS OR SLIPS FROM THIS POCKET

---

UNIVERSITY OF TORONTO LIBRARY

---



